

## **Historic, Archive Document**

Do not assume content reflects current scientific knowledge, policies, or practices.



EXPERIENCES OF PROMINENT BEEKEEPERS

FEB 1 1915



# Gleanings in Bee Culture



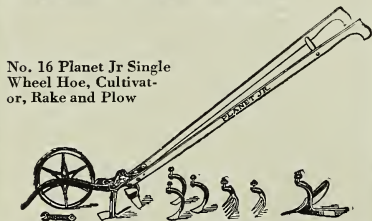
# Planet Jr. Seeders and Cultivators

Planet Jr tools are the greatest time-, labor-, and money-savers ever invented for the farm and garden. They pay for themselves in a single season in bigger better crops, and last a lifetime. Fully guaranteed.



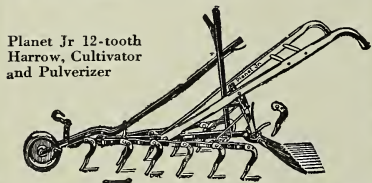
No. 25 Planet Jr Combined  
Hill and Drill Seeder,  
Double Wheel Hoe,  
Cultivator and  
Plow

A splendid combination for the family garden, onion grower, or large gardener. Is a perfect seeder, and combined double and single wheel-hoe. Unbreakable steel frame. Capacity—2 acres a day.



No. 16 Planet Jr Single  
Wheel Hoe, Cultiva-  
tor, Rake and Plow

The highest type of Single Wheel Hoe made. Light, but strong, and can be used by man, woman or boy. Will do all the cultivation in your garden in the easiest, quickest, and best way. Indestructible steel frame.



Planet Jr 12-tooth  
Harrow, Cultivator  
and Pulverizer

Stronger, steadier in action, and cultivates more thoroughly than any other harrow made. Non-clogging steel wheel. Invaluable to the market-gardener, trucker, tobacco, or small-fruit grower.

72-PAGE CATALOG (168 illustrations) FREE.

Describes 55 tools, including Seeders, Wheel Hoes, Horse Hoes, Harrows, Orchard- and Beet-Cultivators. WRITE POSTAL FOR IT.

**S L ALLEN & CO**  
Box 1106S PHILA PA



## Fort Dearborn Hotel

Chicago's Newest  
Hotel

Opposite LaSalle Street Station  
La Salle Street at Van Buren

Equal in construction  
and equipment to the  
finest hotels in America.

Every room with private  
bath or toilet.

**\$1.50 to \$2.50**  
per day

Owned and Operated by  
Hotel Sherman Company  
Chicago

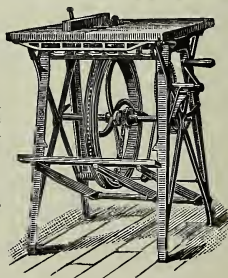
### BARNES' Hand and Foot Power MACHINERY

This cut represents our com-  
bined circular saw, which is  
made for beekeepers' use in  
the construction of their  
hives, sections, etc.

#### Machines on Trial

Send for illustrated catalog  
and prices. Address

**W. F. & JOHN BARNES CO.**  
545 Ruby St.  
ROCKFORD, ILLINOIS



# Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio

A. I. Root, Editor Home Department  
H. H. Root, Managing Editor

E. R. Root, Editor

J. T. CALVERT, Business Manager  
A. L. BOYDEN, Advertising Manager.

Entered at the Postoffice, Medina, Ohio, as second-class matter

VOL. XLIII.

FEBRUARY 1, 1915

NO. 3

## EDITORIALS

### Our Cover Picture

THIS is the promised special number on personal experiences of prominent beekeepers. How do you like it? Do you not think that the beginners of 30 or 40 years ago had a harder time than do beginners of the present day now that all these early mistakes have been pointed out?

Our cover picture shows an apiary of one of our younger prominent beekeepers, Mr. Ira D. Bartlett, of East Jordan, Mich. Another view of this same apiary appears on page 101.

### Date of the Pennsylvania Convention Changed

THE annual meeting of the Pennsylvania State Beekeepers' Association will be held in Harrisburg on the afternoon and evening of Tuesday, February 23, and forenoon and afternoon of the 24th, instead of Friday and Saturday, February 26 and 27, as announced in GLEANINGS for January 15. The dates have been changed so that beekeepers in attendance can more readily see their representatives in regard to proposed legislation. A full announcement will be found under head of Convention Notices.

### Gleanings for 1915 Worth Reading

THE readers' attention is called to the fact that these columns will contain reports of valuable experiments in wintering and increasing bees at the Dismal Swamp, Virginia. We intend to give the unvarnished facts as they occur. Our Apalachicola proposition did not pay expenses, as the final figures now show. Whether the Virginia proposition may turn out any better, we shall see. In the mean time our readers will get the benefit of all these expensive experiments—experiments that the ordinary beekeeper himself cannot afford to make. Where we lose out on these experiments we

shall hope that our readers will stand by us by rolling up a subscription list large enough to enable us to do for them what they cannot do for themselves.

### An Anti-spraying Bill for Massachusetts

THE Massachusetts Society of Beekeepers, by Mr. Frank W. Frisbee, President of the society, have prepared a bill to be presented to the Massachusetts General Assembly, to be acted upon during the coming session, regulating the use of poisonous spraying materials upon the foliage of trees and shrubs and vegetation in general, the purpose of the desired legislation being to protect the beekeepers and their allied interests. In order to get this through, beekeepers should write to their senators and representatives at once, urging their support of the measure.

### The Ohio State Beekeepers' Convention at Columbus

THIS was held on the State Fairgrounds in connection with the general horticultural exhibit, on Jan. 11 and 12. The afternoon session on the second day was held with the State Horticultural Society, during which the relation of bees to horticulture was discussed.

The meeting of beekeepers was not large, owing, no doubt, to the fact that it was impossible to give a general announcement through the bee-journals, as the secretary and president could not determine the time and place of the convention of the Horticultural Society. But what the convention lacked in attendance it made up in enthusiasm in the discussions. Some arrangements were made for one or two field days, and it is possible that the next convention will be held at Akron—a locality where there are such immense areas of swamp bee-pasturage.

Mr. J. H. Morris, one of the State foul-brood inspectors, was elected for the ensuing year as president; Mr. A. J. Halter, of Akron, vice-president, and Mr. E. R. King, of Athens, re-elected secretary.

### Double Telescope Covers vs. Single-board Covers

DURING the sudden cold spells late last fall we had a most excellent opportunity to compare the two styles of covers on bees. The weather turned so very cold that we were not ready to put the bees in the cellar until they had a flight. We replaced some of the single-thickness board covers with double telescoping covers at the home yard. While, of course, the bees had no opportunity to seal down the super covers, it was perfectly evident that the combination was much warmer than the single-thickness cover. The clusters were expanded somewhat, even though the temperature went down in some cases. Next year, for fall work we propose to have thin cushions to put between the outer and inner cover. With such a covering and a chaff division-board, one on each side of the cluster, a colony will be housed almost as warm as in double-walled hives without the bulk or weight; then when settled cold weather does come on we shall have hives that will be ready to put in the cellar, and hives, too, that, when set out in the spring, will protect their colonies much better than if the single thickness of wood all around were the only protection.

The double telescope covers cost a little more; but the experience of the last few days with cold weather shows us that they will more than pay this extra cost in one season. Extreme cold with limited protection will cause the bees to overfeed. Over-eating causes dysentery. While a good flight will clean up the bees it does not repair *all* the damage done. When conditions are right there will be no spotting or black ill-smelling stains.

### Upward Absorbents vs. Sealed Covers

It will be remembered we have always argued (for our own locality at least) against absorbents with upward ventilation for colonies wintered outdoors, and in favor of sealed covers, so called, using ordinary super covers that were laid on top of the hives, but not sealed down. Strictly speaking, then, we did not use sealed covers, but an arrangement that was a compromise between the two extremes; and this is the arrangement that at Medina has generally

given us the best results. A board like a super cover is, of course, better than a sheet of glass, as it is a better non-conductor of heat, but it does not permit of easy observation so that the position and size of the cluster can be readily determined. Colonies with absorbing cushions and upward ventilation have a wire screen placed over them upside down, the same as we use in shipping bees by the carload or moving them from yard to yard. Over this is placed a square of burlap, and the whole is covered with loose planer shavings. The wire screen of course enables us to see down into the cluster the same as through the glass.

Mr. Holtermann called our attention to the fact that we had not provided an air-space over the top of the absorbing material, which he regarded as important. This we have remedied, so that the two ideas or two schemes of top packing may be tried out thoroughly side by side in the same winter case.

In the same yards we have also colonies in individual double-walled hives of the usual pattern. These colonies appear to be wintering well. At present at least the scheme of wintering four colonies in one large quadruple winter case looks good.

Careful records are being made, and the result will be published from time to time in these columns.

### Hams and Comb Honey; Is there an Unjust Discrimination between the Two on the Part of the Government?

SEVERAL times of late the statement has been made that hams may be sold with their wrappings at so much a pound, wrappings and all. Attention was drawn to the fact that if the container of a ham could be weighed in and sold as so much ham, that comb honey, including the section around it, ought by the same token to be weighed in and sold as so much honey; that it is inconsistent to allow the container to be weighed in one case and of being excluded in the other; that if this was true, the comb-honey business was being unfairly dealt with.

While in Washington lately we took up this question and found that hams—in fact, all kinds of packed meat—come under the jurisdiction of the Bureau of Animal Industry. All other foods and drugs come under the jurisdiction of the Bureau of Chemistry. As the two bureaus are entirely separate, there is no inconsistency in the ruling nor in the interpretation of the law as put out by the Bureau of Chemistry or by the Bureau of Animal Industry.

The suggestion was made that the National Beekeepers' Association should make a test case of this in the courts by shipping some honey, not properly labeled, to a consignee, in some other state. A friendly suit might be entered, and the case argued pro and con on both sides; and when the court renders its decision we would know whether comb honey is a package or not within the meaning of the law. But the probabilities are that the court would rule in accordance with the interpretation made by the Bureau of Chemistry, and, besides, it is doubtful if the National Beekeepers' Association would have the funds to conduct so expensive a suit.

### The Editor of Gleanings Visits the Apicultural Building of the Government near Washington, D. C.

ON our return trip from the Dismal Swamp we stopped off in Washington and hunted up Dr. Phillips. In the language of Roosevelt we were simply *delighted* with what we saw, especially in the apicultural building of the Government at Sommerset, a suburb of Washington, D. C. For pictures of this building and grounds see cover for Nov. 15th GLEANINGS and p. 856, Nov. 1.

As announced elsewhere, Dr. Phillips and his assistants are continuing in their new quarters their series of experiments in taking winter observations on the internal temperature of a cluster of bees. In fact, there are several clusters in the cellar and outdoors. Daily records are being taken, including Sundays, and these data are being entered in tables and charts that will doubtless be given out to the public at a later time. It would be premature for us to give any thing at this time, as Dr. Phillips wishes to be sure of his ground before any thing is made public. We may say, however, that he and his assistants are testing out not only different temperatures, but different kinds of foods, particularly candies, and their effect on bees. Further researches are being made into the anatomical structure of bees. Nothing is taken for granted, but every thing is being done with the utmost care and precision.

In the matter of wintering, for example, the beekeepers of the country have been at sea because the ordinary layman is either careless in his method of reporting what he sees or does not actually see what he *thinks* he sees. Too many times the average man jumps at conclusions based on a single observed incident. Dr. Phillips and his assistants are drawing conclusions from scores and scores—yes, we might say thou-

sands—of observations. These data are carefully tabulated and charted, and they will speak for themselves when they are given out to the public.

### Our Visit to the Bureau of Chemistry, Washington, D. C.; an Interview with A. S. Mitchell Regarding the Operation and the Interpretation of the National Net-weight Law

MR. A. S. MITCHELL is secretary to the Committee in the Bureau of Chemistry that has to do with the interpretation and operation of the Federal net-weight law. These men, by virtue of their position, are compelled to stand between the public and the manufacturers and sellers of foods and drugs. We explained to Mr. Mitchell that the opinion rendered, that the wood or section around a square of comb honey could not be weighed in with the honey, was raising a big protest among beekeepers. He was very frank to say it was not clear, even to him, that a section of honey was a *bona-fide* package within the meaning of the law; but it was his private opinion and that of his associates that the courts would rule that the wood around a piece of comb honey or what is technically called the section, could not be weighed in. There could be no question, he said, but that a section of honey inside of a carton or wrapper of any sort was a package. He was sorry that the law was causing protest among honey-producers, but he begged to assure us they did not make the law, nor did he go so far as to say that their Committee could in all cases interpret. The final decision would rest with the courts. We ventured the statement that if we follow the recommendation of the Bureau of Chemistry the courts would be very lenient. He assented to this, adding that the courts probably would not impose any penalty on any man or corporation that evidently was trying to do its very best to follow the spirit and intent of the net-weight law.

A question has been raised by some of our subscribers whether a sixty-pound can of honey is a package within the meaning of the law. We put this up to Mr. Mitchell, and he gave it as his opinion that it is a package on account of its uniformity in shape and size; but he advised that both shipper and consignee, on interstate shipments, should have them labeled or marked according to their net weight or volume. In view of the fact that honey varies in specific gravity, and in view of the further

fact that the net-weight law allows us to use either measure or weight, Dr. Phillips suggested that every square can of honey be marked "Not less than five gallons." While most normal honeys when cold will show a net weight of 60 lbs., in these cans, they may run a few pounds less; and for that reason the suggestion to mark the cans by volume rather than by weight is a good one. Some very good honeys run only about  $11\frac{1}{2}$  lbs. to  $11\frac{3}{4}$  lbs. to the gallon. If we were to use a label for such square cans, "Not less than 60 lbs. net," it would not be applicable on honey running  $11\frac{3}{4}$  lbs.

Of course beekeepers know or ought to know that a 60-lb. square can will not hold 60 lbs. of honey unless it is *cold*. A five-gallon can will not hold more than 58 lbs. of a normal twelve-pound honey when hot enough to prevent granulation.

There was one point brought out by Mr. Mitchell that every shipper and receiver of honey should bear in mind; and that is, both shipper and consignee must see to it that the honey is properly marked before it is shipped from one state to another.

Let us suppose a case, and already several instances have come to us something like this:

Mr. A, in Iowa, cannot see any good in the net-weight law. He does not believe it is enforceable, and, what is more, he is not going to pay any attention to it. If he wants to ship his honey to another state he is going to do it; but Mr. B, in another state, does believe in the net-weight law, and desires to buy honey of A. A sample is submitted, and Mr. B makes a purchase. Mr. A ships the honey to Mr. B, in New York. A did not mark the honey in accordance with the net-weight law. In the meantime the Government officials seize this honey and condemn it because it is not properly marked, and Mr. Mitchell told us that the Government was going after some of these fellows of the Mr. A class. "But," said Mr. Mitchell, "in this case A will go scot free because B bought the honey of A. A's title to the honey ceases as soon as it gets to his railroad station. A is not liable, but B is. B not only may lose the honey, but be subjected to a fine and possible imprisonment, notwithstanding that he is morally innocent but technically guilty. The only way B can protect himself is to compel A to deliver the honey f. o. b. to B's freight office. In this transaction the title to the honey does not pass to B until it arrives at his office. In other words, B is not in this case the owner of the shipment. In most cases doubtless, buyers will have all their honey

sent to them f. o. b. their office. In some cases it will not be possible to determine what the freight will be; but the buyer will pay the freight and deduct the same in his settlement for the honey.

It is very important that shippers of honey, either in car or small lots, comb or extracted, mark the net weight or the measure on the container, on all interstate shipments. We happen to know that there are fellows like Mr. A who are going to get into trouble. The Government is only waiting till every one has a full and fair opportunity to learn the operations of the net-weight law. There is no particular time limit, but the probabilities are that some seizures will be made in the near future.

### Our Visit to the Dismal Swamp; the Early Winter in and about Norfolk, Virginia

On the 11th of January we started for the Dismal Swamp, taking along with us our expert queen-breeder, Mr. Mel Pritchard, who wished to look over the situation to see what could be done in queen-rearing in March and April next. The early setting-in of winter in and about Norfolk—much earlier than usual—gave us some uneasy apprehensions as to the condition in which we might find the bees, and our fears on examination were not wholly ungrounded. Several local residents said the winter had set in almost a month earlier than usual; and Mr. Francis Danzenbaker, who has lived for years in that locality, stated that it was the coldest winter he had seen in seven years. Taking it all in all, the Root Co. with their bees bumped up against a cold proposition.

The first carload of bees was shipped down to Virginia the last of October. If we had shipped them a month earlier to get the benefit of a month more of brood-rearing, or if we had had fair colonies instead of nuclei, it would have been better. With feverish haste Mr. Pritchard and ourself went through the colonies. The great majority of them were in fair condition; but some of the weaker ones gave us a little fear as to what the outcome might be, as we found some already dead.

The second carload of bees, placed in another yard a few miles further south, were in very much better condition. All of its colonies were in good condition except a very few, and some of these could be saved by nursing.

We had been told that bees could fly in the Dismal Swamp almost every day, and

that is true during normal winters; but it has been considerably colder this winter.

The fact that bees can fly almost every day brings in an element of danger. While these frequent flights of course eliminate all possibility of dysentery, these same flights have a tendency to wear out the bees; and unless brood-rearing can proceed simultaneously the colony will grow weaker and weaker. This winter cold weather set in early in December; and it was extremely cold during Christmas and the holidays. In the mean time brood-rearing stopped entirely. Mr. Pritchard and ourself were a little worried over the outlook. Finally we called in Mr. Edmunds, an old beekeeper of that locality who has carried on beekeeping in a large way for a number of years. He assured us we need have no apprehension over the smallness of some of the clusters, saying that they would pull through all right.

The main cause of the death of some of the colonies was the early winter and robbing. Constant flying nearly every day weakened some colonies, with the result that the stronger ones were inclined to worry their weaker neighbors. This was aggravated somewhat after feeding had begun. We instructed Mr. Jennings not to do any more feeding, but to contract the entrances. This is very important, said Mr. Edmunds, on account of mice, and to conserve the heat of the hive.

Mr. Pritchard called attention to the fact that the *yellow* bees were not holding their own as well as the darker strains of Italians. The fact became more and more apparent as we bent over the bees. The native Virginia brown bees showed up better yet.

Another thing that we observed was that there was considerable "drifting," as the colonies had been placed in pairs. The numerous flight days would call out the young bees in force. The result was that they would have a tendency to join the entrances of the strongest flyers. Repeatedly we observed that, where there was one colony that was weak, the one next to it in the pair would be quite strong, indicating that the former had contributed to the strength of the latter.

This is one objection to putting hives in pairs in the South. Where we found the strong and the weak ones side by side we simply traded place with the hives, allowing the colonies to equalize themselves during the subsequent flight.

We also observed the importance of top protection. Some colonies had more than others; and it was evident that the latter were the stronger. The two days that we

were there, there were heavy frosts in the morning, and it was easy to see the relative size of the clusters of bees on the tin covers, for the exact size and location of the cluster would be indicated by the melted frost, while the remaining area of the cover would show white crystals. We instructed Mr. Jennings to put pine leaves between the inner and outer cover, as we used on these hives what is known as the "telescope" cover, with a super cover or a thin board beneath.

In a few cases the field mice had crowded the entrance cleats into the hive. They did no particular damage except to riddle the combs at one side of the cluster. All cleats have now been securely fastened, with a further contraction of the entrance.

We asked Mr. Jennings and Mr. Edmunds how long this cold weather might last. The reply was that it might pass off in a day, and stay off, or it might last clear up to the last of February or first of March. We hope that the early setting-in of winter will be followed by an early spring.

=====

### The Behavior of that Cluster of Bees Behind Panels of Glass; Freezing Bees

As mentioned on page 49 of our last issue, we have been gone from our office for about ten days. Meanwhile there has been considerable cold weather. On the day of our arrival home, on the 21st, we removed the wooden panel to see how the cluster of bees was coming on. It was getting smaller—very much smaller—and the shell of protecting bees was gone. The cluster was broken and scattered, and the bees seemed to be cold or chilled. The next day they were as still as death, and we began to wonder whether they would not, under such conditions, assume a state of semi-hibernation. We looked at them intently, but there was very little movement—only a sort of suspended animation—just enough to show that the bees were alive, but somehow they did not look good. We left them, however, without disturbance. The next day they were perfectly motionless, and the day following there was not a tremor of any kind. Evidently the bees were chilled through. We took the hive off its pedestal near the window outside, brought it inside, and opened it up. The entire cluster seemed to be stone dead. We picked up a few, and warmed them with the breath, but they showed no signs of life. We placed the hive on a hot radiator, and at the same time we removed the cushion so that the warmth of the room could descend into the

hive. For over an hour there seemed to be no sign of life. In about three hours they began to "come to."

There, we have just taken another look. The bees are active again; but they do not look quite normal—in fact, a little logy—and there is a distinct smell of dysentery. We said the bees are all alive, but there is quite a pile of them yet on the bottom-board. A few of them that dropped down from the cluster are beginning to show signs of life.

For three whole days this little cluster of bees was chilled clear through, without any apparent movement. How much longer they might have remained and revived can only be guessed; but it is apparent that, when the surrounding temperature is cold (below freezing), and the cluster is too small to generate heat by muscular activity as shown on page 49, the bees have to remain chilled until the weather changes.

At the time we removed the colony from its pedestal on the outside the thermometer in the hive but remote from the cluster showed 29; and the cluster at the time we examined it in its chilled state was as cold as death. Apparently the temperature of the individual bees in the cluster was the same as the reading of the thermometer—that is, 29.

Some years ago, late one fall, the outdoor bees had a beautiful flight. They rushed out in a roar. A sudden cold wind set in with a rainstorm, striking down to the ground thousands of bees. It began to freeze, and a thin skim of ice covered the bees. We supposed, of course, all were lost, for the cold spell lasted for about three days. Then bright sunshine came on and melted this thin skim of ice. The atmosphere turned warm, when, wonderful to relate, those bees that had been covered with ice began to show signs of life. They soon began to crawl, and after a little they flew back to their hives. Our apiarist told us what was taking place, but we thought he certainly must be mistaken. Examination showed that the bees were rapidly taking wing from the ground where they had been under the ice for three days. Other persons have since reported the same thing.

It is apparent, then, that bees can stand a freezing temperature for a time. Whether they are the worse for the experience afterward we are unable to say.

Again, we have observed over and over again, that, when there is a protracted zero spell for ten days or longer, we find, as soon as it warms up, a large number of the clusters of bees outdoors chilled through

stone dead beyond recovery; that if the zero spell lasts four or five days, or not more than a week, these clusters that were chilled through will gradually assume their normal condition again as soon as it warms up; but if it lasts ten days or longer these small clusters never revive. Apparently, bees can stand a chilling of about ten days, and that is all.

Another fact is interesting in this connection. A few years ago when Dr. E. F. Phillips was at our Medina yard conducting some experiments of his own, acting under his directions we put some queen-cages containing some bees and queens on cakes of ice in a refrigerator. The cages were placed face down on the ice. Both the queens and their attendants were chilled through; and while their temperature probably was not below 34 or 35, they to all intents and purposes appeared dead. We found we could keep them in this chilled condition for about ten days but not any longer. Queens subjected to this long chilling period, contrary to all expectations, began laying normally as before.

We are presenting these observations on the matter of chilled bees during winter to stimulate further observation and get further reports. Dr. Phillips and Mr. Demuth, of the United States Department of Agriculture, have shown that when the temperature of the cluster and the atmosphere immediately surrounding it drops below 57 F. that bees have the power to raise the internal temperature by exercise. They are now trying to determine what amount of protection, if any, is needed to keep the bees as nearly in a state of quiet as possible, so they will not have to "exercise," warm themselves up, overeat, and thus bring on dysentery.

There is a wide unexplored field in this matter of wintering. As will be seen by reports elsewhere, Dr. Phillips and Mr. Demuth are working at this problem from several different angles. Our own experiments as recorded above were for the purpose of confirming their observations already reported on the internal temperature of a cluster of bees.

#### HIBERNATION OR WHAT?

One more question: Do bees semi-hibernate when they are chilled through so as to preclude movement? Is it true hibernation for the time being, or what? If they could remain in this chilled condition through the winter, or until warm weather comes on, like flies and ants, it would be true hibernation. Again, is it possible that bees under some conditions can remain chilled more than ten days or two weeks?

Dr. C. C. Miller

## STRAY STRAWS

Marengo, Ill.



THE WET OR DRY issue is the chief factor in the election of a speaker in the Illinois legislature, and it's which and t'other who wins. "The world do move."

THAT carload of beekeepers from Chicago to Denver makes me feel homesick that I can't go. What a glorious time those Colorado fellows gave us when the National convention was at Denver before!

"IF we are all successful in producing a crop of honey each year, we should fail from overproduction," says P. C. Chadwick, p. 53. May be, m-a-y be. But so long as the average isn't more than 20 cents' worth of honey per capita we'll have to overproduce a big lot before there will be any honey to throw away.

"THE eight-frame is not worthy of mentioning as a beehive. It may do for a home for a nucleus for a short time," p. 36. Don't be too hard on us eight-framers, friend Janes. I humbly concede that a larger hive may be better; yet with the eight-frame I get crops that don't exactly look like the work of nuclei.

QUADRUPLE winter cases are getting such a boom now that it might be worth while to try them two deep, eight in a case, as I saw them at Jesse Oatman's many years ago. [Dr. E. F. Phillips, or, rather, his brother, is trying out precisely this thing. Perhaps we can get them to report on it next spring.—Ed.]

J. G. BROWN, your testimony in favor of the Alexander plan of increase, p. 27, is excellent, but beside the mark. Of course, the plan of increase is good; but please give us names of those who have increased by that or any other plan so that "*you can have two good strong colonies in place of one ready to commence work on your clover harvest.*"

W. L. ROBERTS warns against rearing queens in an upper story over an excluder, as too much trouble and perhaps loss. I don't find it so here. Several times I've had queens thus reared and fertilized when there was no intention on my part to have them reared, and it was all gain. But when I deliberately put brood there for the express purpose of rearing a queen, it's a failure. I wish I knew why.

R. F. HOLTERMANN, p. 56, says with the straight rows of hives facing the same way

the general result is drifting. My bees are that way, and for years there was drifting bad. For years there has been none. Let me tell again what I think prevents it. As soon as a hive is placed on the stand and dead bees cleaned out, the entrance is closed down to an inch square or less. That's all—no drifting. [See editorials.—Ed.]

"EVEN if Dr. Miller has a continuous flow during the spring, surely he must be very exceptionally favored if he has not adverse weather at times when stimulation would be an advantage," says R. F. Holtermann, p. 12. I don't have a continuous flow, friend Holtermann, and I suspect I have as much adverse weather as you. But it isn't so bad as to prevent the queen laying right along; and the chief effect of feeding in adverse weather would be to make the bees fly out to their hurt.

MY son gave me a vest-pocket flashlight for Christmas. I had a sort of dark lantern before that I thought fine for looking into hives in cellar; but the flashlight beats it a mile, just as you find it in Medina. Nice, too, to see the time of night. [These little flashlights are extremely handy; fine for looking down children's throats to see if there are any white patches indicating serious trouble. They are also very convenient for running around buildings or barns on a dark night; but the light must not be kept on continuously, otherwise the batteries will soon wear out. The kind that we are using with such satisfaction very much resemble a good-sized fountain pen with a clip to hold it in the pocket. It is 5 inches long and  $\frac{3}{4}$  inch in diameter, and costs \$1.00. Extra batteries are 25 cents each.—Ed.]

GEO. W. YORK, formerly editor of *American Bee Journal*, is now a member of the Idaho legislature, where he is likely to get in some good licks for beekeepers and prohibition. The governor is also strong for prohibition. [Yes, and he is in the legislature at the right time. A member has introduced a bill prohibiting the keeping of any bees within one hundred yards of the line of the other property. While we do not believe it can get beyond committee, we can't afford to take chances. All our subscribers who see this should write at once to Hon. Geo. W. York, General Assembly, Boise City, Idaho, offering their protest to House Bill No. 18.

Later: This has been killed 11 to 47; thanks to Mr. York.

# BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



A young queen is half the battle, both in fighting disease and in securing surplus.

\*\*\*

If bees are in good condition, and have plenty of stores, they should not be disturbed much during the winter months.

\*\*\*

With a light crop of oranges, and with trees in a prosperous condition, the prospects were never better for an abundance of bloom this spring.

\*\*\*

The best way to build up weak colonies in the spring is to see that they have a young queen and plenty of stores in the fall. It is the best insurance you can take on bees.

\*\*\*

There is no profit in extracting too close, then running for increase every second year. Leave plenty of honey always. Use the time you would spend in making increase in running the extractor for profit.

\*\*\*

B. G. Burdick, of Redlands, Cal., expects to leave soon for the Antelope Valley, where he will enter the bee business on a large scale. Alfalfa is the principal source of honey in that section, and the quality is said to be of the finest.

\*\*\*

Several apiaries of 200 colonies each can be run by two men with a power extractor by going from yard to yard. But one man to every yard during the honey-flow is worth more than his hire to requeen and to look after details of the yard, and the power extractor can be used to advantage at times also.

\*\*\*

Up to Jan. 12 we have had a series of small storms with a light precipitation which has not penetrated the soil to any great depth. The surface has received enough to keep vegetation in a prosperous condition, and prospects for early pollen were never better. More rain, however, will be necessary to produce a crop from wild flora.

\*\*\*

J. Edgar Ross, of Brawley, Imperial Co., is disposing of his bees after some years of successful operation. He has become the chief pen-pusher as well as owner of a new newspaper which has already seen issue.

We regret the loss of Mr. Ross from our ranks, but wish him a full measure of success in his new venture.

\*\*\*

Within a few years sage honey will become the most desirable of all honeys, and will sell at a premium. The sage ranges are yielding more rapidly at present to brush fires than to the plow. Many of our finest ranges have suffered in the last few years. One side of the famous Mendleson range in Ventura Co. was destroyed last year.

\*\*\*

J. Edgar Ross, of Imperial Valley, says the only apiary he has producing alfalfa honey exclusively sometimes produces a white honey. This is the first time I have had an admission that alfalfa produced any thing but a dark honey in Imperial Valley. He also says there are sources of production other than alfalfa that are factors in honey production, which do not produce a light honey.

\*\*\*

On Jan. 10 I opened two hives to observe their condition—one an average colony, and the other the weakest in my little home yard. The average colony had four frames of brood and a force of bees sufficient to begin on a full-fledged honey-flow. The weaker one, which is fully as strong as my strongest one last season, had brood in three frames a part of the way across the frame. There has not been a day during the entire winter when these hives have not contained brood. With this condition prevailing at the present time, it looks favorable for a spring working force of bees in this section equal to any of the past ten years.

\*\*\*

A gentleman at the State convention spoke of antiquated methods, among which he mentioned the solar wax-extractor. I flinched just a bit, for I am a little tender on that subject. I am just antiquated enough to believe that capping-melters now in general use color the honey. To my mind there is no question about it. If one were extracting a dark grade of honey it might not make much difference; but when a light grade is being handled, and the object is to place it on the market as white as possible, I will take no risks with a capping-melter which runs the honey over a hot metal surface. This of itself has a tendency to discolor. Until I am convinced that it does not discolor, antiquated or not, I will call "old Sol" to my assistance.

# NOTES FROM CANADA

J. L. Byer, Markham, Ontario



Jan. 8.—The weather is quite mild, but not warm enough for the bees to fly. Here's hoping we shall get warmer weather before it is colder again. Anyway, the "January thaw" hoped for in my last Notes has arrived; but in view of the fact that the "oldest inhabitant" says he has seen hundreds of Januarys without once missing a thaw, how could we expect anything else in January, 1915?

\*\*\*

Last season a number of queens received in one mail showed signs and "smells" of dysentery in the mailing-cages. At the time, I wondered if bees too young had been placed with the queen for attendants; but since reading the editorial, page 4, Jan. 1, have we reason to believe that boiled honey was responsible? It is an important question, and one in which commercial queen-rearers will be particularly interested, especially in cases where long-distance shipment is necessary.

\*\*\*

Quite often we hear it said that, north of a certain latitude, outdoor wintering is not safe, whereas other factors enter into this problem that have to be taken into consideration as much as latitude or weather, which, after all, are what are usually considered in a question of this kind. Here in York Co., Ontario, the winter weather is not nearly as severe as it is in the northern part of Simcoe Co., one hundred miles north, where we have a large apiary. In both cases we winter outdoors; and, strange as it may seem on the mere assertion of the fact, the bees up there are warmer in a forty-below snap than they are here at 10 below zero or thereabouts. The reason? Simply because, as a rule, we have a light snowfall here in York Co., and the hives are generally exposed to all the cold wintry blasts during most of the winter season. Up north the snowfall is heavy, and generally comes early in winter—in fact, it is a rare thing that there is much frost in the ground in that section, while here it will penetrate two and three feet. At this date there is practically no snow in York Co. At the north yard the whole apiary has been about completely covered for two weeks or more. If there is danger that this snow may have a bad effect we have yet to observe it. Two years ago I went up there on New Year's day and found all the winter cases about out of sight—many of them totally covered over. I dug down in front of a few, and in each case

there was an opening melted around the entrances, varying from the size of my hat to a space as large as a half-bushel. I decided they were all right, and found out in the spring that such was the case, as the bees wintered finely and were very strong early in the season. But after the bees have had a cleansing flight in early March or thereabouts, then it is a dangerous practice to leave snow all over hives, because after strong colonies have had a flight, and are breeding heavily, there is pretty sure to be trouble if they are left covered over very long in early spring weather.

\*\*\*

## VIGOROUS ITALIAN BLOOD IMMUNE TO EUROPEAN FOUL BROOD.

Dr. Miller wonders if I really mean what is implied in the quotation he takes from a recent item of mine in GLEANINGS, page 836, Nov. 1. "Universal requeening with good Italian stock seems to be the only remedy for it." European foul brood is the subject under discussion. Frankly, doctor, that is what I mean; and after wading through all the government literature we have on the subject, taking into consideration the advice of our friends in charge of the department of apiculture, and in various other ways, summing up the evidence of those fighting the plague at first hand, that is the only thing that seems worth doing. True, there are different methods and seasons of doing this requeening; but the evidence seems to point strongly to the fact that where apiaries are all pure Italian stock of a good strain, the disease makes little headway to need curing. Needless to tell the doctor that what I do not know about European foul brood would fill volumes of GLEANINGS, while what I do know might be condensed into a short paragraph. One thing that I do know is that I dread to see the disease make an appearance in my apiaries (none there yet that I know of), while on the other hand I have little fear of our old enemy American foul brood. Possibly it is a case of familiarity breeding contempt; but the fact is that the old-time foul brood is easily diagnosed when once known by a beekeeper; and while destructive if let go, yet we know the course of the disease, how to treat it, etc., while on the other hand this new enemy is very erratic in many ways, and I am tempted to think that even our experts have a lot yet to learn about its various phases as to methods of infection, etc.

# BEEKEEPING AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado.



I mentioned in a former issue that bees should winter well. This is rather too optimistic a view, although the winter so far has been very favorable. The bees throughout the state did not breed very well in the fall. Some are rather short of stores; and in Boulder Co. the honey from the horsemint has apparently not helped wintering conditions in the least. The loss in some districts is likely to run up to 25 per cent. I expect a loss of 15 per cent any way.

\*\*\*

The beekeepers of Colorado are going to turn out in force for the National convention. The committees working on local arrangements are meeting with gratifying success. When you come to Denver you will be surprised at the size, enthusiasm, and hospitality of this convention. You will be met at Union station by autos and taken to convention headquarters in the Auditorium Hotel. You will be greeted by specialists, amateurs, and enthusiasts alike. You will be banqueted, lunched, and entertained. You will gain ideas worth dollars, gauged either in hundreds or thousands according to the size of your beekeeping operations.

\*\*\*

## SUGAR BEETS AND SUGAR.

The editor says on p. 965, Dec. 15, 1914, that sugar is almost sure to remain high in price. This will doubtless be the case; but he goes on to say that there will be no beet sugar raised for two or three years. As Colorado is the largest producer of beet sugar of any of the states, I think that statement is entirely too strong. The sugar companies are making plans for this year, any way, and the farmers seem to be far more exercised over a desire for a higher price for their beets than from a fear for lack of seed. I understand that there is seed enough on hand for this year already for planting.

\*\*\*

## NET-WEIGHT STAMP FOR SECTION HONEY.

A rubber stamp, much more attractive for stamping comb honey, can be made by having the lettering placed within an oval border. The words "Net weight not less than" should run around the inner border at the top, the weight in ounces spelled out, running through the center, and the bee-

keeper's name and address or number around the lower side of the oval border. I have seen stamps made on this design, and they are a great improvement over the ordinary stamp now in use.

\*\*\*

## THE ALEXANDER PLAN OF INCREASE.

It is not always safe for a man as young as I am to call in question statements made by a man of the experience of Dr. Miller; but I cannot refrain from protesting the accuracy of his statements regarding the Alexander plan of increase.

I will not trespass on Dr. Miller's white-clover territory, for he knows more about that than I do; but when he states that he does not believe the surplus crop of honey can be increased in one place in a thousand he invades my territory. If he will make his question to read, "What honey-producer increases his crop of white sweet clover and alfalfa each year by dividing his colonies before the white-honey harvest?" I will give my name as doing it four times out of five; and I will state that I believe seven out of every ten honey-producers of the alfalfa-sweet-clover districts of the Rocky Mountain region who practice the Alexander method or modification of it have profitable results. The percentage of successes would be larger if it were not for the fact that so many of our alfalfa locations are destitute of early pollen sources so that it is simply impossible to breed up much until June.

This matter of dividing in early June or late May, according to the season and location, is one of the points that should be pushed among western beemen, although they are learning very fast. If increase is not desired, the bees may be united in the fall, and the united colonies wintered in two-story hives.

Dr. Miller has, however, defined the limits of the use of the Alexander plan very well. Here in the West we have an early flow from wild flowers, fruit-bloom, etc., that prepares the bees for swarming in many instances before alfalfa blooms in June. By dividing the force of bees each colony may be steadily built up during June; and in July and August, when the main surplus comes from sweet clover and alfalfa, the two colonies made from one, *a la* Alexander, are both ready to store surplus, and they do too. J. G. Brown has also called in question Dr. Miller's two statements. But then, we are both young men.

# CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.



## UNITING WEAK COLONIES.

"Last year my bees came out weak in the spring, and many of the colonies died before the honey-flow commenced. By the way things are now looking, I fear I may have the same experience again. How would it do to unite two weaklings, so as to make one good colony?"

There is no doubt that the uniting of two weak colonies to make one strong colony is profitable; still, that uniting must make the one better than either of the two would have been when the honey harvest arrives, or our labor of uniting is worse than useless. We do not hear so much about "spring dwindling" as we did twenty years ago, when often half the colonies in an apiary would be so poor and listless from poor wintering that it seemed almost impossible to get them to build up much before settled warm weather came on, and hundreds of colonies would die during March, April, and May. Then we were told that the time to unite was when it was discovered that any two colonies were too weak to be of use alone. But it was soon found out that, as a rule, the united colony would be no better at the end of a month than each would have been if left separate. In some instances the united colony would perish when two no better than was each of those united would have pulled through and become good colonies in time for the buckwheat flow. Years ago, when I experimented along this line, I put as high as seven such colonies of "worn-out vitality" into one hive, the seven making a rousing colony at the time, and in a month all were dead; while some separate colonies, no stronger than some of the best united, survived and built up for winter.

The trouble seems to be that, where two or more such colonies are put together, the bees feel they are now in condition to do great things, and so work themselves up to great activity in starting a large lot of brood, which wears out what little vitality they have before enough of this brood can emerge to take the place of those wearing out daily, hence all perish; while if they had been left to themselves they would have been less active; the few young bees which emerged would have taken the place of those which died, and, when settled warm weather came, the bees in the hive at that time could care for a large lot of brood in proportion to their numbers, so that the colony would build up for the next winter, if nothing

more. I find in an old diary, that I once had a colony become so weak in this way that there were, by actual count, only 83 bees with the queen on June 10; and yet this little colony, without any assistance from any other colony, built up into a good colony for winter, and gave six sections of nice buckwheat honey. Since then my way has been to confine small colonies to as few combs as they can cover, these combs having plenty of honey in accordance with the number of bees, so that they do not feel any need of scrimping along this line, building them up as fast as possible when it comes warm weather, and then uniting them just before the honey harvest, leaving a nucleus to catch the few bees which may return to the old stand of the weaker of the two which has been placed in the stronger. This will give one colony strong enough for storing, and a nice nucleus to rear two or three good queens from; or if the old queen is left with a comb of honey and the few bees that adhere with her, and these given a frame having a little brood in it, this will build up into a fair colony for winter should the flow prove good from fall flowers.

## CONTROLLING DRONES.

"I have six colonies of bees—four blacks and two Italians. Would it be well to give the Italians a comb of drone comb and put drone-traps on the blacks when the young Italian queens are mating?"

If queens are to be mated to Italian drones, of course one must control all drones from undesirable colonies. Drones can be controlled with traps; but we must buy the traps, keep them on the colonies, and furnish the honey necessary to rear and feed the drones, all of which is an expense. Traps would be necessary with box hives; but such are not so much in use these days. For frame hives, much the best way would be to remove all drone comb from the black colonies, and replace it with worker comb. In this way trouble and cost of producing the drones will be saved, as well as the cost of the traps and the disturbance the traps bring to the bees for the first few days after they are put on. Besides this you will rear 50 worker bees to every square inch of such comb you use to replace the drone, instead of the 32 drones, these workers storing honey for you in place of the drones eating it. In any event you could not be sure of having your Italian queens purely mated unless there were no black or hybrid bees within three to five miles.

# GENERAL CORRESPONDENCE

## BUILDING UP FROM NOTHING

### How One Man does Nearly all the Work in Caring for 500 Colonies

BY IRA D. BARTLETT

It is no uncommon thing for me to be asked all sorts of questions about the wonderful busy bee. How long does a bee live? How much honey does a colony make during the season? How many swarms issue from one hive? and then after giving them the best answers I can they will usually tell of the wonders, as they appeared to them, and the miracles performed by old Mr. So and So, when they were boys—how he used to "swarm" swarms without a veil, and with his arms bare, and how the bees would crawl over his face and arms and he never, never got a sting. They had seen the nice yellow wax, and at times *honey*, being carried into the hive by the bees, but it was always on their legs. They had been told the uselessness of the drones, and how the bees did the bidding of the queen.

Regardless of how wrong their ideas were they were interested, though they never investigated further. You and I have seen these same things and heard the same stories. The bright pollen that we thought was honey aroused in us the greater desire to go into the hive and see where it was put, and how things looked in there. We were thrilled by the wonders of nature performed by her agent, the honeybee. Many of the readers of GLEANINGS have just got their first peep

into the hive; and, oh the raptures that thrilled their souls! Some of these beginners will follow beekeeping as a pastime; others will engage in it as their life vocation. The last named are most interested in how the successful apiarist of to-day got his start, and how he increased his colonies and built up his apiaries to where he could make a living from them alone. It would be impossible for me to give here a complete history of my beekeeping life; but I can tell how I advanced.

When I was a boy I lived in town; and whenever there was a chance I hid me to the country, for there were beauty and glories the town could not reveal. I loved nature. I was inspired by the song of the birds, the beauty of the growing crops, the fresh, fragrant, and invigorating breezes, and the grand old sun; and the moon and stars were oftentimes my sole companions. I made the most of my trips to the country where there was a very nice apiary, for I liked honey, and soon I was interested in the bees. Early in May, 1895, the owner of the apiary brought me down a nice prime swarm, for which I paid \$5.00 in labor on the farm. I was a happy boy, and looked into that hive nearly every day. It is a wonder the bees stayed at all; but they did

stay until early in August, when out they came, intending to abscond. I hived them, however; and as we had a late fall with good weather, they gathered enough to winter on. The parent colony reared a queen, and I got them both through the winter safely. I at once subscribed for the *American Bee Journal*, and soon after for GLEANINGS, and for two years I believe I read nothing except that which pertained to the bee. I attribute a great deal of my success to



FIG. 1.—Ira D. Bartlett's home, 20 x 40 supply-house, and garage. Mr. Bartlett purchased a Ford touring car in 1914, which he finds is a great saving in time and labor. The residence has full basement, furnace heat, electric lights, bath, etc.



FIG. 2.—Ira D. Bartlett's 160-colony apiary. Another view of this apiary is shown on the cover.

this. The following season I increased to seven; and, although there was no white honey stored, there was a heavy fall flow, and all had plenty for winter. Besides, I extracted 175 lbs. of buckwheat honey from the super on one of the parent colonies.

The extractor I used was a four-frame non-reversible for which I traded a hound pup, giving \$2.00 to boot. This extractor was used until I had nearly 100 colonies.

I wintered my colonies right from the start in winter cases quite similar to what I use now, and was very successful. I started buying colonies from others about me who were not as successful as I, and kept increasing gradually until I had some fifty or so, when I found it to my interest to move them out of town during the summer. I returned the bees in the fall for several seasons, wintering them in father's back yard, and in a neighbor's when father's was full.

Finally I moved for good to twenty acres owned by my father. This ground later became my property, and was my home until a year ago when I moved to town, where I now live.

From the start I got my increase from

natural swarming and the buying of bees, and purchased no queens until a few years ago, when I divided my colonies after the honey-flow in July, and purchased as many queens as I made divisions. I have followed this practice until now, excepting that I tried dividing in June this past season on a few colonies. I must say that I was impressed that this method is ahead of the late division. I made nine increase from two, and had four extracting-supers filled with honey, besides redividing several of the increase the first of August, when I made my regular increase. Doesn't this look better?

I put into winter quarters this fall nearly 500 colonies, wintering 140 in cellars, and the rest in my regular winter hives, which hold four colonies each.

Now, I have been successful as a whole during my beekeeping career; but you must not think that I have not had to work and study and plan. From the start I had to get ahead as best I could. It took money to buy supplies—in fact, for quite a while it took all and even more than I got from the bees from year to year. My father said I spent more than I earned, and so would never

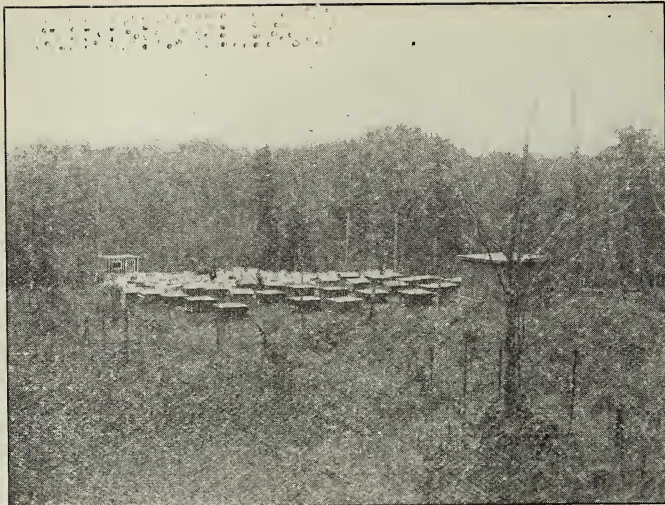


FIG. 3.—One of the outyards. Though situated right in the woods, the bees are never molested.

make any money. I realized this, but hoped to get to a point where I would not have to put it all into the business each year.

I economized by making my supplies in a nearby factory, lumber being very reasonable in price. But I surely would not advise any one who expects ever to have a large number of colonies to make his supplies by hand, for to handle large numbers successfully the hives and fixtures must be made right and of uniform size.

Bees that I purchased I always transferred into my own hives, excepting a lot of 104 purchased in hives of different make but uniform. These were reduced to about thirty, and the other bodies used as supers.

When I purchased bees, supplies, queens, or other necessary equipage, I almost invariably paid cash for them, borrowing the money at the bank if I did not have it. I think this method the most satisfactory to all concerned. In this way I have built up my business quicker, and have been able to accomplish much more and to do it much easier. One thing right here ere I forget: Don't let your business increase faster than your knowledge. Keep posted. Read all the bee-journals, and supply yourself with the best books on the subject.

The past season I managed three apiaries, doing nearly all the work except during the extracting and packing, when I hired one man. I have worked out a system of handling the bees, and find it only a pleasant pastime to handle four or five hundred colonies, and so am planning to increase to 700 the next season if all goes well. I might

mention a few things that I believe are essential to the handling of large numbers with perfect ease:

1. A level ground, or at least a smooth one, with hives systematically arranged for easy access with wheelbarrow.

2. A honey-house perfectly tight with escapes in windows, so that all honey may be brought in at one time, warmed up, and extracted. What a pleasure to work stripped right down, with hardly a bee in the house, all because the supers are rid of bees by the use of

the Porter bee-escape, the bee-escape working well because the brood is all hatched and a wood-wire queen-excluder placed on at the right time! I find it only a short job to put on the excluders or escapes; for after distributing them I have actually put on three a minute where there was only one super.

The reason I can separate the supers so easily is because the supers are uniform and of proper bee-space between. This is due in part to the fact that I clean the top of the frames and take out all burrs just before the first honey comes in. It is not a long job; and, oh the time it saves later! I also clean all extracting frames and supers the same way, using a carpenter's scraper similar to a putty-knife, but wider. The blade is very thin and of steel, and can be purchased for about 60 cents. The scrapings of the supers and hive-bodies will just about pay for labor; so you see it costs nothing, and it is done when you have nothing much to do except to watch the bees build up.

I use the Miller feeder to feed the bees after the crop is taken off. This is very easily done. After reducing the entrance I mix up sugar and water—two parts of sugar and one of water if for late feeding; and after weighing the hives (I guess the weight) I pour in the syrup at evening and the feeding is done. I take off the feeders with escapes after the feed has been taken down and they are ready for winter. I use a steam-heated honey-knife, and the latest Root four-frame hand extractor; but I expect to install a power extractor some day.

I use Root hive-tools, a four-inch copper smoker, and a bee-veil of my own make which I think has every thing to date beaten. This I will describe and illustrate in a later article.

I have not told how I went to work to do any of the things that are essential to success in this business. I know there are scores of little things that will come up that are not explained. I know that many attempting to do some things that I do may not fare just as I have. On the other hand, many have worked out an altogether different system which proves a success. My methods may not do for some other locality; but remember that oftentimes there is some little kink that really makes for the success of the entire system, and the locality is not altogether to blame. It would be impossible for me to try to explain here, step by step, how I proceed from spring to fall.

I am pretty sure I am right in feeding sugar instead of honey, for in this locality I know that sugar won't spread disease, and is a safe winter store. I know that the queen-excluder, properly manipulated, is

not a honey-excluder, and is one of the greatest time-savers known. I know that the escape is indispensable when the excluder is used, and a nuisance when not. I know that a clean level yard is a wonderful help in taking off honey and at other work, and will not ordinarily cause any trouble in getting queens mated. I know, too, that in a well-lighted, commodious, tidily kept honey-house, free of bees, nearly twice the work can be accomplished, and the honey goes into the cans free from dirt or bees, and is really worth more on the market.

Now just a word to the beginners. It is said 90 per cent fail who enter the bee business. You expect to be among the 10 per cent who succeed. Success is a matter not so much of locality as it is of the man. If you are a good, clean, moral young man, full of ginger and ambition, and exercise some judgment, you will succeed in the bee business as in any other line. Don't think that the bees always work while you sleep. Remember that a little vim and push are required, even in this vocation.

East Jordan, Mich.

## PERSONAL REACTIONS AND REWARDS

BY J. L. BYER

After receiving the editor's request that I contribute an article to the special number on experiences of prominent beekeepers, it was with reluctance that I finally consented to oblige him in this matter. In the first place, it seems that, after writing more or less steadily for a number of years, the beekeepers will have come to know all about my fads and fallacies without my retelling them; and, again, I rather object to the term "prominent beekeepers," knowing full well that many who have never written a line publicly have nevertheless a greater claim to the title, judging them by their success in the calling. In GLEANINGS, Jan. 1, 1913, an article was published from myself under the heading "Mistakes and Experiences of Beginners," and if I should repeat any thing at the present time that was published then, readers will have to bear with me; for in an article where personal references have to be made it will be impossible to do otherwise.

As all who know me are aware, my apiaries are not pretty to look at, since for the most part they were bought of different people and are, of necessity, in different patterns of hives. In fact, I have every thing from the regular eight-frame L. hive, which I regard as much too small for ex-

tracted-honey production, up to the twelve-frame Quinby, or Jumbo, as some would call it. Having these different kinds of hives is not a matter of choice; but as I started beekeeping with no funds on hand, and no other assets than a good wife and three children, I was no choosier in the matter of kinds of hives, and bought bees in



FIG. 1.—Part of one of J. L. Byer's apiaries in double-walled hives permanently packed.

whatever hives they happened to be. In the course of a few years I cleaned up the various small lots around us, the owners finding the bees unprofitable with the limited attention usually given to such stock by farmers. These few remarks will show that,

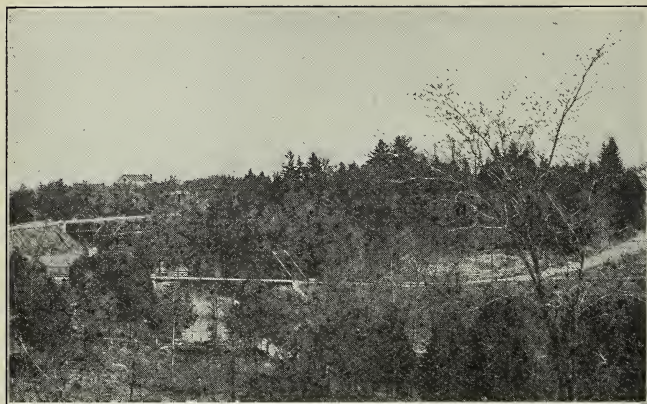


FIG. 2.—View looking south from the apiary shown in Fig. 1.

in the main, very little increase was made the first few years I started to keep bees for a living aside from buying the bees outright. At that time I could buy good strong colonies at from \$3.00 to \$5.00 each; and I



FIG. 3.—Corner of one of J. L. Byer's apiaries of 250 colonies; hives single-walled; natural protection afforded by elevation to north, and bush on other sides.

still believe that, for stocking outyards as well as making increase at such out-apiaries, this is still the cheapest plan, provided bees can be bought as cheap as they could be twelve or fourteen years ago. At that time a few beekeepers of my acquaintance allowed much natural swarming, and would often offer me strong first swarms at \$1.00 each. I would take the hives filled with full sheets of foundation; and when bees were in them I would go some night and bring them home. At this time I

was still on the farm, and working there nearly every day; and many a night have I been on the road till early morning on trips bringing home bees after I had worked hard all day on the farm, and was expected to be ready for duty at 5 A. M. again.

But things have now changed; and instead of buying bees at three or four dollars a colony, or swarms at one dollar, double those prices will be asked,

and often it is hard to get them at any price. Just a word of caution to prospective purchasers of swarms in localities more favored than ours:

In leaving hives for the bees to be put in, be sure that all the frames are correctly spaced, and fastened securely in some manner; and if foundation is used instead of combs, see that all sheets are well wired. If self-spacing frames are used, the first caution is unnecessary; but in all cases foundation should be well secured. Neglect of these small matters will lead to a lot of trouble, as I found to my sorrow on my first few trials of getting swarms.

From the very first I started one outyard in addition to the bees I placed at home. This apiary already had some bees belonging to my father. This made it necessary to tackle at once the problems incidental to outyard work; and while the methods used to control swarming are beyond the province of this article, yet since the matter of making increase is one of the items season-

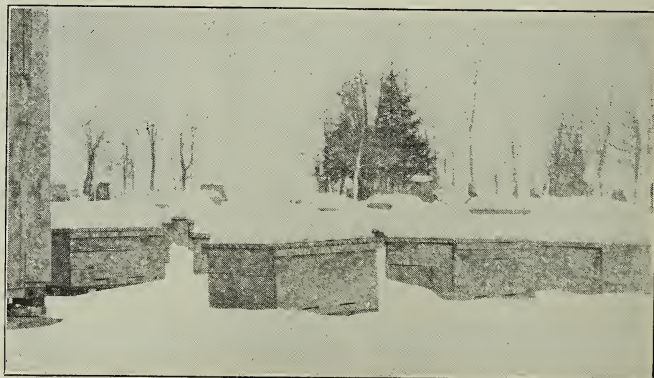


FIG. 4.—Same apiary as shown in Fig. 3, packed for winter, two hives in a case, all facing south.

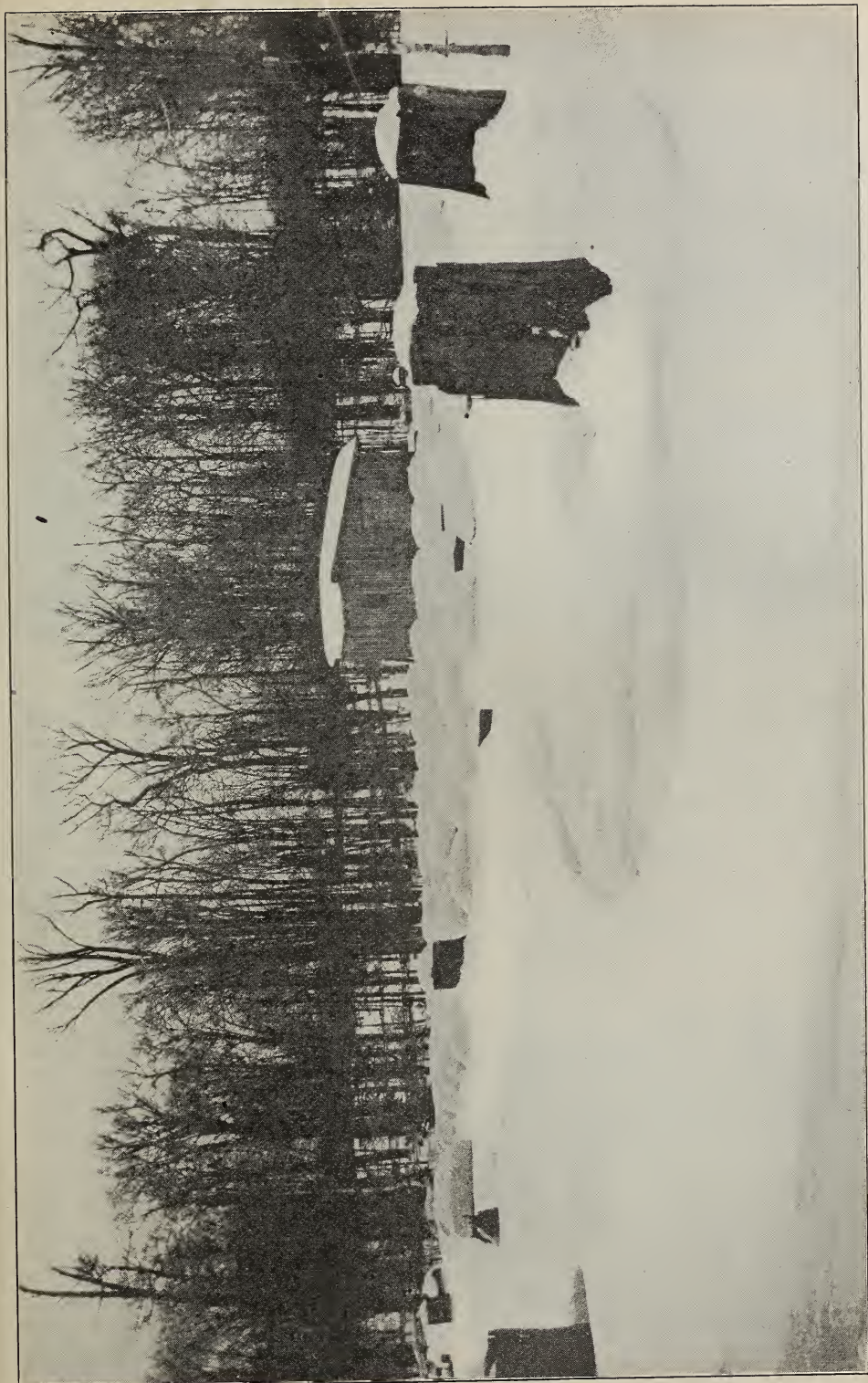


FIG. 5.—Part of J. L. Byer's apiary shown in Figs. 3 and 4, taken later when covered with snow.

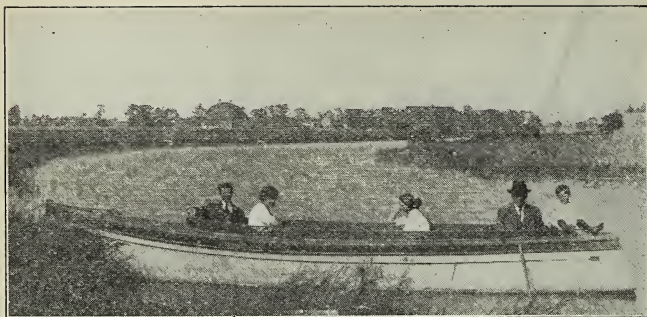


FIG. 6.—Motor boat used at the apiary shown in Figs. 3, 4, and 5.

able at the present time I shall say a few words along that line. The fact is apparent at once, even if we never ran outyards, that natural swarming is not to be considered at all in the matter of making increase at outyards; and as losses are bound to occur there as well as at home yards, we soon had to decide the best way to go about making up these losses. Numerous plans of dividing up the colonies into two or more nuclei were tried for a while, as my grandfather, who was a successful beekeeper, had used this method in my earlier days when I had little thought of keeping bees for a living. But I soon discarded the plan for different reasons, and in the end settled on the nucleus system now commonly in use by a good many. This plan differs from the old-time dividing scheme in that all brood is saved, and the colony from which the increase is being made is not perceptibly weakened or disorganized for the gathering of a crop of honey.



FIG. 7.—25 miles from home at 6 A. M., on the banks of a trout-stream.

Briefly the plan is as follows. I simply give it for the benefit of beginners, knowing that the system is a well-known one. Either raise young queens or buy enough to have one for each nucleus you wish to form for purposes of increase. Seven or eight days before your young queens are ready to hatch, or that long before you are quite sure of receiving the ones you

have ordered, go to a colony strong in bees and brood, and, after finding the queen and placing the comb she is on at one side, lift up four frames with brood and place them in the upper story with a queen-excluding zinc between the two stories. Do this with as many colonies as you wish to increase, filling with worker combs or full sheets of wired foundation the empty space in the brood-nest from which the combs of brood were taken. Seven or eight days later, when your queens arrive, go to these colonies and place the four frames of brood with all the adhering bees you can take with them into a hive already prepared. Place this hive on its stand, and at once introduce the young queen to them by any of the well-known methods. As you are dealing with nearly all young bees in the nucleus (any old field bees in the recently formed nucleus will at once fly back to the old stand), introduction will be successful in nearly every case. In fact, I cannot recall having lost a single queen when introducing to nuclei except in one or two cases when the old queen had got up through the excluder, and had then been carried into the nucleus on the combs of brood. Many would advise using less than four combs; but, all things considered, I prefer that number instead. There is no mistake in making a colony *too* strong; but thousands of mistakes are made by making them *too weak*. In an ordinary season a nucleus made as I have described will build up into a strong colony



Luncheon at the Colorado Honey-producers' Association, at the annual meeting, Dec. 29, 1914. Seventy were present. The National meets here Feb. 16, 17, 18, 1915.

for winter without any further fussing aside from filling out the vacant space in the hive with foundation or comb as it is required. This increase should be made only at the time of a honey-flow, and I prefer to have the work done just after clover has started to yield nicely. Drawing brood from very strong colonies often heads off swarming by giving the queen lots of room in the brood-nest just when it is needed; and the honey-storing power of the colony so treated will be reduced very little as compared with other methods which often totally disorganize a colony for a few days at least—often for a much longer time. While this plan is old, I firmly believe that it is the cheapest method yet known, when all the factors are considered, such as labor, depreciation in amount of honey stored by the parent colony, and absence of worry over all methods used in which natural swarming is in any way to be considered.

Some of the most frequent questions asked me are as to methods of wintering practiced, and the kinds of hives I use. The last has already been answered; but I might add that, in so far as personal preferences are concerned, if starting all over again, and I had it in my power to choose any kind of hive I wish, I certainly would take the ten-frame Quinby or Jumbo hive for ex-

tracted-honey production. Not being a comb-honey producer I would not care to give any opinion in that line. But I always advise *beginners* to use the ten-frame L. hive for extracted honey, as it is a standard make, and can be secured at any time from all dealers in bee-supplies.

I have even been asked more than once by letter, "Just how much money have you made in beekeeping?" This question can be answered by a little story I often heard from a well-known character who used to live near us. He used to say, "Canada is a splendid country to get along in. I came from England forty years ago with nothing, and have held my own remarkably well. I have nothing yet." This might be a slight exaggeration in my case, but not so much after all, as I make no claims to accumulating much of this world's goods. Starting with nothing, and raising and educating a family, requires considerable income; but even if very little money has come our way, we have enjoyed the work, and have had enough to eat and wear. What more could be desired, any way? Previous to this year we lived in a rented place; but we have now purchased two acres of land and erected a modest house 28 by 30, having many conveniences, such as hot and cold water in all three stories, with a fully equipped bath-

room—something we have never enjoyed before, and something that is altogether too scarce in homes of many people who can afford such things better than we can.

In regard to wintering, I prefer the permanently packed hive both for winter and summer, and the first cost of such hives is all that would keep me from using them altogether. Two years ago I purchased a camera; and, although the veriest greenhorn in photographic matters, for some reason I have had fair success in its use, and very rarely fail in getting a good negative.

Fig. 1 shows part of one apiary in which the bees are in the kind of hives I prefer—always ready for winter in so far as packing is concerned, except placing a cushion of sawdust on top in November. The location shown is a natural beauty spot. Fig. 2 shows a view from this yard looking south. Fig. 3 shows part of one apiary which has 250 colonies in it. It is needless to say this picture was taken a year ago. We didn't need to pile supers very high in 1914, although this yard was the only one that gave us any surplus at all this year—about 50 lbs. per colony. The yard is sheltered on all sides as shown, with timber on three sides and high rocks on the other. Fig. 4 shows a small corner of this same apiary packed for winter. I do not like the four-hive cases. They are altogether too bulky to handle; and then, again, I like a south entrance. As will be seen, the cases we use here take but two hives each. Fig. 5 shows the same apiary when covered with snow a year ago.

At this date (Jan. 2, 1915) they are covered much deeper than the picture shows. The thermometer goes to 40 below zero here, so I am not worrying about snow over hives. Fig. 6 shows the motor boat we use at that yard. The gentleman at the right is my father, who stays at the yard up there during the summer, my son also being there in the busy season. Fig. 7 shows my youngest lad, my two eldest girls, and a cousin, near a trout stream 25 miles from home at early morn of a summer's day. One of my great weaknesses is a love for fishing—especially fishing for the "speckled beauties," and on the occasion on which the picture was taken the other members of the party were persuaded to go for a picnic so that the pater could have a day off at his beloved sport.

I might yet add, in connection with the boat shown, that it is used to go to town five miles away for groceries, etc. Then it is often used for pleasure as well, as a run down the river to the bay at the close of a day's work is splendid recreation, to say nothing of doing a bit of fishing now and then as occasion offers. It is 24 feet long, and has a twin-cylinder six-horse-power engine, capable of developing about twelve miles an hour. In locations where navigable waters are within reach, this means of locomotion is far ahead of the auto in many respects, especially in economy of first cost, upkeep, and roads. The latter never get "muddy," at least with the boat, even if they are sometimes "rough."

Markham, Ont.

## A REMARKABLE START OF A REMARKABLE CAREER

BY DR. C. C. MILLER

When I was a boy I had a bumblebees' nest in a cigar-box up in the haymow. I don't think that had any thing to do with my being a beekeeper. Later I helped my stepfather carry home, one night, a colony of bees in a box hive before the days of movable-frame hives. It was set on top of a "bee-palace," a barn-like affair big enough to hold half a dozen colonies. The expectation was that the bees would build down and fill the "palace," and then the door could be opened and a nice cake of honey cut out whenever desired. But the bees didn't seem to have a full understanding of what was expected of them, and died without building down. I don't remember that I had the slightest interest in the bees or their untimely demise.

Not till I was thirty years old was any interest in bees awakened. That was in 1861, when on a day next to the Fourth of

July a swarm of bees came sailing across Marengo. Seeing them, my wife began to throw water upon them. I don't know how much effect that had, but at any rate she got those bees into a sugar-barrel. I was in Chicago at the time; but when I got home I began at once to be interested in beekeeping. A barrel didn't seem the best lodging for bees, and the next spring I made box hives, Quinby style, and had them occupied. Holes were bored through the top of the hive, and six-pound boxes were placed on top, with a telescope cover over all.

The bees I had at that time were such as probably most of the beekeepers of the present day have never seen—pure, unadulterated blacks. These remained in their purity for five years, when in 1866 I got my first Italian queen. That gave me an opportunity such as cannot easily be had at the present day to know the difference be-

tween blacks and Italians. Whatever may be the case in Switzerland and other lands across the sea, one of the things that I know for certain is that Italians are far and away ahead of the blacks that I had, and I made a good bargain when I paid \$10.00 for an Italian queen.

Some things in which blacks differed from Italians would seem strange to many a beekeeper of to-day. I wonder, for instance, how many of my readers ever saw a good case of "roping down." When a frame covered with blacks was held up by one corner, the bees would run down over one another and string down from the lower corner until they formed a "rope" six or eight inches long. The important difference, however, was the difference in the amount of honey gathered.

In 1863 I had begun to use a movable-frame hive having a frame of odd size, the dimensions of which I do not now remember; but in 1870 I adopted what I supposed was the regular Langstroth hive. In one respect it was more "regular" than the Langstroth, for there were no fractions in the dimensions of the frame. It was 18 x 9, while the Langstroth is  $\frac{3}{8}$  inch shorter and  $\frac{1}{8}$  inch deeper. That little difference in size seems hardly worth considering, yet when later I came to change to the regular size it cost no small sum in money and trouble.

In 1870 I got a honey-extractor, the Peabody, the best then known. There was no framework revolving in a can, but can and all revolved. A handle was on top, and you leaned over and made it revolve, and you had to be careful when the extractor was in full motion lest the projecting frame should strike fingers or clothing.

In 1871, having bought several colonies at different times, I succeeded in having fifty hives to go into cellar for winter, each hive containing bees, although some of the hives contained scarcely more than nuclei. By the time the season opened in 1872 I had two colonies left! How was that for encouragement after eleven years' work? But as I

was keeping bees only for the fun of it, it didn't trouble me, and I went at it afresh.

But why give in detail all the ups and downs of my career in getting started as a beekeeper? Are they not all duly recorded in the chronicles of my experience in the book "Fifty Years among the Bees"?

In 1877 I returned to comb honey, using pound sections. They were four-piece, there being as yet no one-piece. For 38 seasons I have continued the production of sections; but for the past two years I have extracted some 500 pounds each year. If I were to begin afresh it is quite possible I should extract mostly or altogether, chiefly because it would be doing just so much toward having more honey eaten, and so having a stronger nation!

Although beekeeping was for a long time only a side line, yet as the years went by I began to dream of a time when all my time could be employed in working with bees, planning about them or writing about them. In 1878 that dream became a reality, and I have now passed through 37 seasons as a specialist in beekeeping. And what a good time I've had! Some talk about the enthusiasm of the beginner, and the better results obtained because of that enthusiasm. All fudge—at least in my case. Last summer, my 54th summer with them, I was just as much interested in working with bees, just as keen in working out new problems with them, and, if you must insist on my telling it, just about as likely to try some fool thing with them that would turn out all wrong, and withal just as grateful to God for the enjoyment of it all, as I was in the middle of the past century.

Young fellow, if you have no other interest in bees than the money to be made out of them, let 'em alone. But if you're so built as to love bees, to think bees, to dream bees, go to it; your chance to-day is better than when I began. And if you want just a word of advice from one who would be glad to begin it all over again, let me advise you to *breed from the best all the time for all your colonies.*

## HOW NOT TO DO AND HOW TO DO; BEGINNING IN BEEKEEPING

BY R. F. HOLTERMANN

[The following article is the first of a series by R. F. Holtermann upon the general subject, "How Not to Do and How to Do." The second of the series will be published in an early number.—Ed.]

When one is about to undertake a certain piece of work it is his duty to do that work thoroughly and expeditiously. It should be a fixed principle to expend no more time and energy upon an operation than necessary, for act upon act in time becomes a

habit, and such a habit results in making, to a greater or less extent, success or failure of the work. Let me illustrate, and perhaps I may be pardoned for referring to myself. Many years ago, when times were hard, and I was a young man with but little ready

money, I wanted work for the winter. A friend obtained work for me at 85 cents a day in a factory making bee-supplies and other goods. After paying three dollars a week for my board there was not very much left for other expenses; but I took the job, beginning about Dec. 1. In my work I saw better ways of doing things—methods by means of which time could be saved and sometimes better work done. The result was that by spring I secured \$1.50 per day, and worked myself up to a salary of \$1500 a year.

To repeat, it is a waste to spend more time and energy in any operation than necessary. It is not only wasteful at the time, but tends to bad and slipshod habits in work. If one requires the exercise he had better take it with a set of dumbbells or Indian clubs. From observation I should say few bear this in mind when doing their work.

If we survey the horizon of our experience and make an analysis of our contact with our fellow-man, or even examine ourselves, are we not forced to the conclusion that people are a good deal better at telling how not to do things than they are at telling how to do them? True, with criticism the question is not one of the spirit in which it is offered, but is it just and fair—that is, when the subject of criticism is considered? On the other hand, when the critic is considered the question is, "In what spirit do I criticize?" In taking up the subject for the beginner, "How Not to Do and How to Do," I want to point out, in no spirit of fault-finding, the wrong way to do things, as a means to educate and fix wrong methods upon the attention, and then, as far as lies in my power, to give a better method.

#### HOW NOT TO DO.

There are many things which lead up to making one decide to engage in beekeeping. Sometimes the imagination has run riot with reason; perhaps a sanguine temperament has before the mind's eye a splendid honey season to the exclusion of any of the poor seasons where the profits are nothing, and where the gross receipts are looked upon as net profits. One thing is sure—that no one has any right, if he desires to act in wisdom, in thinking that he can make a living by keeping bees unless he has a practical training in the business. It is true that there are many successful beekeepers who have started in a small way and worked up until their success has warranted them in making beekeeping their main occupation; and what has been done in the past can, no doubt, be done again; but such persons secure their practical knowledge at

their own expense. Their location is favorable, and they are thorough and persistent in what they do. That is the foundation of their success. One or more good text-books should be studied, and bee-papers taken. This is within the reach of almost every one.

In beginning beekeeping few know at what season to begin. One time of the year appears to be as good as another. Time and again I have had people write to me wanting to buy bees at the close of the honey-flow when any profits for the next ten months were entirely out of the question; and in all my years of beekeeping I have never sold them a colony after the honey-flow was over, because I feel they were unconsciously acting unwisely.

Many others want to start on the cheap scale. Of course, if a success is not to be made of the undertaking, the cheaper one starts the better; but a bad outfit with which to start a business is a severe handicap. Box hives are bought, and these in the hands of a novice are often greatly injured when



FIG. 1.—Weighing a colony Don't guess at it.

transferring. I have known queenless colonies to be sold to a beginner, and afterward these have died without any cause apparent to the possessor. Then improper hives are often used with improper bee-spacing. However, the first step toward having bees is either to steal them, have them come to

you in the shape of a swarm, have some one make you a present of them, or buy them. In this article I purpose telling how to select them during daylight.

I remember when I first bought bees that I thought the weight of great value. Was not honey worth so much a pound? Did not the weight indicate honey? Why, yes (I have a feeling that way still, and honey is honey; and with me it is a rare thing for the apiary on an average to have too much honey). The novice then goes through the apiary, lifting the hives and selecting the heaviest. This is illustrated in Fig. 1 by weighing the colony. A nicely painted hive will also attract the beginner. But these points take second place.

#### HOW TO SELECT.

In purchasing bees, other things being about equal, I should want to buy them in the Langstroth hive. There are other hives as good as this for honey production. In fact, I would gladly have the frame an inch deeper, or even a little more, or a little shorter and deeper; but when I come to consider the handicap in getting supplies, especially when there is a rush, and the supply-dealer is fully occupied with getting out a regular line of goods, then I see the wisdom of using regular lines. Then if I or those after me want to sell the bees and fixtures, and I look back upon an experience of thirty years in beekeeping, then I know that the bees in the Langstroth hives, unless in a very restricted area, sell the best and bring the best prices. I know of many instances where beginners have acted contrary to advice, and in years to come they or their widows and families have found out the correctness of this statement. I would take the largest Langstroth hive I could get; but take a Langstroth, even if the hive is only an eight-frame. The frames, at least, are correct, and can be put into a larger hive.

But I would sooner buy a colony in another hive, if it were numerically strong in bees and brood, than buy a weak one in the Langstroth. If I were in the apiary on a fine day when the bees are flying, gathering honey and pollen in fruit-bloom (and that is the season to buy) I would select for my inspection the colonies into which the most bees flew in a minute. This is illustrated in Fig. 2. Move to one side so as not to im-

pede the bees. This will give proportionate strength of the bees. Select the best.

Next take the smoker, or have the bee-keeper take it, and examine the contents of the hive. If the combs cannot be taken out because they are not straight, then they are little if any better than a box hive. In fact, for transferring they may be worse.

If the combs are movable, examine for brood—capped, uncapped, and eggs—and

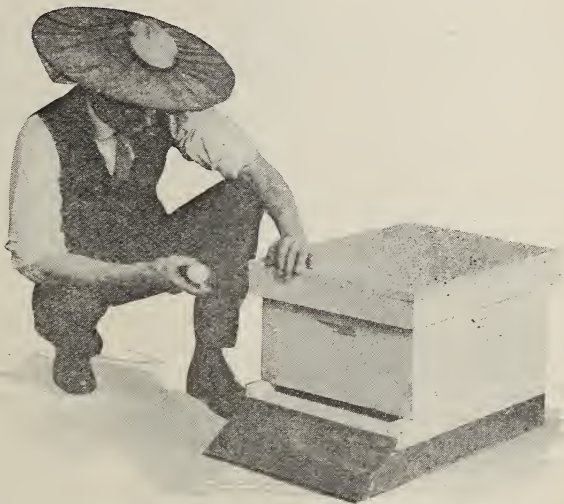


FIG. 2.—The beginner counting the number of bees entering in a minute.

the more of this the better, for it will soon be flying bees. If the colony is strong there will doubtless be drone brood as well as worker brood. There will be found two sizes of cells—one a little larger than the other. The brood in the larger will be capped rounding in contrast to the smaller capped flat. That in the larger cells is drone brood, and is undesirable. The drone comb is objectionable because it enables the queen to deposit drone eggs in the cells, and the bees to rear drone brood. The drones, for their production, use the energy of the bees. They use up stores in their production, but they never gather stores. A little poorer colony with worker comb is better.

Up to this point I have said nothing about the variety of bees. Give Italians the preference. They are a great deal better than the common black bee. Owing to the prevalence of European foul brood they are probably better than Carniolan bees; and they are better than Carniolan for the inexperienced, because it takes more careful management to keep them from swarming. A colony of black bees, if otherwise much superior, I should prefer, because it can be

changed into an Italian in six to eight weeks by introducing an Italian queen.

It is only after the above points have been considered that I would compare honey in the hives. A hive should not have less than 5 pounds of honey in it at any time—better even more; but a colony may have so much honey in the hive that the queen will not be able to find empty cells for depositing eggs. It is an easy matter to

feed a colony sugar syrup if short of stores; but if the colony is weak, the mere fact of its having stores in the hive does not enable the bees to feed and keep warm a large quantity of brood.

If the beginner can buy bees from a reliable person, he should put the onus upon him. Probably he will not sell his best colonies, but he will deal frankly.

Brantford, Can.

## A GLANCE AT A FEW POINTS IN MY EXPERIENCE FROM A ONE TO 3000 COLONY BEE BUSINESS

BY J. J. WILDER

I was a successful beekeeper before I ever saw or knew the advantages of modern hives as they are now put out. I was using a crude movable-frame hive of my own get-up, and several sizes of them. At this time I had about 100 colonies, the most of which were in my own make of hives, and in one yard where my home or mother yard is now located. I am going to skip over this part of my beekeeping life, which started from only one colony in a box hive, which was a present to me.

It was about fifteen years ago when I saw my first modern hive, and could look into its merits. I saw that it was the thing to have, and obtained a catalog at once, also some bee literature, and spent my idle moments that winter in posting myself. During the time I hauled into the home yard about fifty colonies in box hives. I had been making good crops of honey all along, and it brought a good price. All returns were placed in the bank, to be expended to the best advantage in my bee business. So I bought some modern hives and put them up during that winter; and when spring came on, and the bees started to gathering nectar, I tried my hand at transferring, and I made a good job of it. Here is where I call the beginning of my beekeeping life. At this time I was making only a moderate salary; but the bees were given all my spare time, which was not much; but they never suffered from neglect.

### INCREASE.

Increase was the next object. The colonies increased naturally somewhat; but this was not practiced long before I resorted to my own way of increasing—that of dividing up very strong colonies, especially those preparing to swarm, into two equal parts, making sure the queen went with the half to the new stand if possible, and that the other half had one or more queen-cells under develop-

ment. This way of making increase is kept up until this day, and all along I have found it the very best, all things taken under consideration. If more increase is needed it is made in the same manner in the fall or late summer; but nothing but very strong heavy colonies are used for this purpose. Never in my life did I sacrifice a crop of honey for the sole purpose of making increase. When the very strongest colonies (or those likely to swarm) divided up, did not make sufficient increase, both in the spring and fall, I purchased bees in box hives or any other kind, for the extra increase. My mind has never been changed about this, for I believe it is the most economical and satisfactory way a beekeeper can lead out.

### CONTROLLING INCREASE.

In spite of progress I came fully to the point, as well as all beekeepers do, where the emergency brakes have to be applied. However, I did not come to it suddenly, for the let-up was a little slow. The bees came more and more under my subjection as I advanced, for I knew that I would reach this point sooner or later. My first step was to ventilate well at the bottom, or about one inch at each end of the hive, which secured me better results in quality and quantity of honey. Then more supers or storing room came into play than we might ordinarily expect. Also in making the weekly rounds to the apiaries during the honey-flow queen-cells were removed where increase was not wanted; and so, under such treatment, the bees have gradually grown out of their natural desire to swarm.

### THE STOCK.

The point of stock is a great factor, and must receive some consideration. Under the best and most severe methods in certain localities or some seasons, certain races of bees will swarm too much, and such stock should not be adopted nor stock bearing the



FIG. 1.—J. J. Wilder's first yard in the process of being transferred.

reputation of being great swarmers. It is not worth while to obtain such stock and expect to breed or run this natural inclination out of it, for it will give you trouble sooner or later. To save experimenting and a lot of dissatisfaction let me say that you will not find such good traits in any bees that breed up slowly and then when the queens do become very active, and the colony reaches a very high pitch, soon fall back and proceed throughout the season in this up-and-down manner. Trouble is practically sure to follow at or near these high points, when no honey is secured at the low points.

What we want is a strain that will breed up early in the spring, and hold their own throughout the season. Such bees are good honey-gatherers, and almost non-swarms. I have found the gray Caucasians far superior in these points to any of the other races of bees.

#### OUT-APIARIES.

Here was the critical point in my beekeeping life, and one that required more careful study than any other in order to proceed properly. Had it not been that the business was so well on my mind and heart I might

have done so if I had proceeded with nothing definite as to the extent of it. Friends were advising me not to start out on such a venture. Then, too, I had been out over the country and made investigation as to honey-plants in different sections. Also, I had visited some progressive beekeepers. These things, together with what I had read from bee publications, were sources of encouragement to lead me out and on.

Well, I started out with willing hands. Each year for a long time I increased my

bees and outyards nearly 100 per cent. I established the outyards from  $2\frac{1}{2}$  to  $3\frac{1}{2}$  miles apart, and extended the line of yards in six different directions as convenient to highways and railroads as possible. Some of the remote yards at the end of these lines were 30 miles from the home yard. During this time I had erected and equipped a good honey-house at the home yard, and had found that it was more economical to haul all honey to this house to be packed. This business was run for chunk honey solely, as the grade of honey would suit such packing better.

Our business was incomplete, and we went to the new field, about 200 miles away, where the honey-flow was suitable, solely for



FIG. 2.—The first yard just after transferring.



FIG. 3.—J. J. Wilder's 23d yard, the home yard in the new field.

the production of comb honey in one-pound sections; and after establishing the home yard and packing-house at a good shipping-point we began circling outyards around it at a distance of three miles apart, hauling all the honey to the one packing-house to be prepared for market. As soon as the territory got too remote we went some twenty miles away and did the same thing; and when this branch was similarly established we went twenty miles further and established a similar branch. These three branches are operated solely for comb honey, and the honey-flow is about the same at each yard.

The business was yet not complete, and we went 100 miles from the home or mother yard and established another packing-house,

and around this established another series of apiaries, all run solely for extracted honey, which the sources of honey mostly justified. When this branch was established we went from it thirty miles and established another branch with outyards arranged in the same manner, and all run for extracted. Now our bee business is complete and the 3000-colony point reached, which is the extent of the business at present, and what I set out to accomplish.

#### THE LABOR.

The season I established my first outyard I hired some experienced help to do the necessary apiary work I could not do alone at odd times. This cost me as much as or more than I was making; but I had a job I could not lay down and pick up again, and

I had to hold to it, for a while at least. The following season I hired some more experienced help for the swarming season; and at the close of this season I had five apiaries established consisting of over 300 colonies. The next season I gave up my job, and went to the bees to give them my entire attention. I needed some raw help through the rush of the season, and for that purpose I picked



FIG. 4.—J. J. Wilder's 53d yard, the last one.

out a promising boy about 17 years old whom I thought I could make an apiarist. During his services with me I schooled him in bee culture, and the next season I put him on as a regular helper. But I needed more raw help, and so I advertised for it in a farm paper. I had my pick of a lot of applications as a result, and took the farmer boys who had never known any thing about city life, jobs, or public work, but had always been right on the farm with their parents. Out of the best of these, from time to time I have made apiarists and good reliable helpers in the business. I have found such help by far the best and most reliable. Later I tried considerable experienced help which never resulted satisfactorily. So I abandoned it entirely, and settled down to hire raw help and give it my own training. The best way I have found to handle reliable experienced helpers is to let them operate bees on shares, allowing them one-half for the other, except increase, which I hold. This allows them a chance to make more than they could in working for wages only. Where such an apiarist is competent a number of apiaries are turned over to him to operate, and he hires such help as he needs; but over all these must be a general overseer whose duty it is to see that the bees nowhere lack attention.

#### RETURNS.

I have never put one cent in bees that they did not make under my care. The fact is, I never had it, and I was \$227 in debt when I started beekeeping. This debt I had contracted three years previous, while in school, and nothing fell to my lot in the way of this world's goods; but I did plan for the bees to pay their own way and helped them do it. From the very first colony the bees paid their own accounts; but there was not much expense about the first 100 colonies, as their supplies were crude, and only lumber from the trash-piles of lumber-yards was used in making the hives.

I managed to live, and not draw any money out of the bees' treasury for outside purposes—that is, for any thing except for the bees, until I had over 300 colonies. Of course this gave them a good start, and ever since then I have drawn on the bees for all expenses; and, later, from time to time I have drawn on them for capital to make outside investments to the amount of over \$10,000, and my net income from my entire bee business is over \$4000 annually. All accounts against the business are settled when the returns are in at the end of each season.

Cordele, Ga.

## WHAT FIVE DECADES HAVE TAUGHT ME

BY J. E. CRANE

As I look back over the years, it seems a long time since I first began beekeeping, for it is now just forty-nine years ago this month since I bought my first colony. It was a small colony of Italian bees, about half full of combs, for which I agreed to pay \$25.00. A little later my brother bought another, and we went into company in the bee business. By the last of March we had bought two more colonies of black bees in box hives.

These I thought I could readily transfer into movable-frame hives which we had made for this purpose. I had read all about how to do it by driving the bees out first, and embraced the earliest opportunity to do so while the weather was yet cold. Alas! the bees did not drive worth a cent; and I found after drumming for an hour or more that they refused to go up into the hive or box on top of the hive as I was told they would. In fact, the writers I had consulted had failed to state that driving bees out of their hive should be done in summer instead of during cold weather. How often writers

fail to mention some little matter that is essential to success, and then wonder that others do not succeed as well as they do!

Later we succeeded in transferring, and on the 4th of July looked up the queens of those black colonies, and soon introduced Italian queens in their places; but the season went by without a single new swarm or a pound of surplus honey. We increased our stock, however, by buying other colonies, and by the next spring we had ten or twelve hives of bees—not very strong but healthy. The season was good, and we made some increase and secured about 100 lbs. of surplus honey to the colony.

During the previous winter I had made glass boxes enough when filled to weigh 500 pounds. My father told me I had made up enough boxes to last ten years; but when he found we did not have half enough for the first season he changed his mind and thought he would like some Italian bees, and offered \$75 for the colony I first bought and its increase, and \$50 more for the honey they had made. I did not

care to sell, but bought a number of Italian colonies of Moses Quinby for him, and took him in as a partner.

We began sowing alsike that year, which I believe was the first sown in Vermont. The season of 1868 was not as great a success as the previous year; but we made some increase and secured some surplus. In the fall I bought twenty colonies for myself; and as our company had some fifty we began the next season with seventy colonies. The season was propitious, and we secured some 3000 lbs. of most beautiful honey, nearly all in glass boxes that I had made ready the previous winter. I piled this honey in the cellar in a very artistic way, as I thought, and used to feast my eyes on it and show it with pride to my neighbors. Notices of this great crop of honey were published in various papers. In addition to the crop of comb honey I had made a honey-extractor and secured with it 240 lbs. of extracted honey from one hive—an unheard-of yield at that time.

The next spring I was married, and moved to a small farm several miles from my early home, taking my share of the bees (some fifty colonies) with me. During the spring my father was taken sick, and he turned over his share of bees (about twenty colonies) to me, so I started the season with seventy colonies; but it was hot and dry. There was no white clover that year; but the drouth shortened the corollas of the red clover so bees worked on it as freely as they usually do on white clover, and I got a small crop of honey with a few swarms. The next season was better, and I secured more surplus honey as well as increase.

I did not attempt in those years to increase very fast, thinking it better to get a moderate increase with a fair crop of honey than to make a large increase and little honey. I have since noticed that those who become excited when they get one good crop, or hear of some one who has, and make a rapid increase, are almost sure to go out of the business later. There are too many lean, ill-favored kine to eat up the well-favored kine to make it pay.

The year 1872 was propitious, and I secured some 4000 lbs. of comb honey in glass, which sold in the New York markets for *forty cents a pound*. I also increased my stock of bees.

After a time I had more bees than I thought should be kept in one place, and I started my first outyard with a good many new experiences. Later a cousin came to me and wanted to sell me his yard of bees; and as I wanted to occupy the territory where they were located I bought him out;

and so one and another, for various causes, came to me, wanting to sell their bees. I see now that most of my outyards were started in this way by buying small or large yards. This method of increase has its advantages as well as its disadvantages. The yard to be bought often has a different style of frame from the one the purchaser has; or if it is the same style, the frames may be one-fourth inch longer or a little deeper, so as to bother if they get mixed with the purchaser's. They may contain an unnecessary amount of drone comb. In one yard we bought, almost the first thing I did was to prune out the worse than useless drone comb. After leaving all that was necessary I melted up what I had cut out, and made some 70 lbs. of beeswax from it.

The advantages of buying a yard of bees is that you can usually buy much cheaper than you can make new hives and frames and fill them with foundation and bees. I find I have usually secured enough surplus honey the first season to pay for the bees, besides more or less increase. Many want to sell after a poor year; and as the next is likely to be a good one, if you buy you are in the swim. In one case I bought a small yard and secured enough honey from it to pay for it twice over, besides doubling the original number of colonies the first season.

As I have always lived where the cellar of the house was in clay, and rather damp, I have wintered mostly on summer stands in rather large and clumsy double-walled hives. Still I have sometimes had success in wintering indoors, and have nearly 100 colonies in my cellar at the present time. Cellar wintering is much more economical in food than outdoors. Both methods have their advantages as well as drawbacks.

I have always used an open-end frame, and now use almost exclusively the Langstroth standard size. I do not like the Hoffman closed-end frames, perhaps in part because I have never been accustomed to them. I should judge there are two or three times as many of them in use, or two or three times as many beekeepers using them at the present time, as of the open-end frame, judging from my experience in inspection work.

If the follower-board were made more substantially so it could be removed before trying to remove the combs they would work very well; but I most often find the follower-board of  $\frac{3}{8}$ -inch stuff, where I find them at all, and so glued in with propolis that they usually tear apart before they come out.

If these hives were kept free of propolis

they would work better; but the average beekeeper does not keep bees that way.

If I have any advice to offer a beginner it would be: Get a standard hive that suits

you, and then stick to it. It may not be the best, but it will doubtless be better than to keep changing.

Middlebury, Vt.

## BRINGING BEES HOME IN A SHIRT

BY WM. ROSEMERGEY

One day last month a friend and I went out to find a bee-tree. We got up on the mountain about two miles and walked right up to a swarm on a little sapling. I tried to cut it off near the ground; but when nearly cut through it went over and the bees all fell to the ground. They seemed quite cross, so I scattered a little thin honey on them and retired for a little while. About fifty yards away we found a big hemlock cut down, and saw that some one had taken the honey. So we came to the conclusion that our swarm had come from there.

We went back to look at the bees. They were in the air, but soon settled on the bark of a tree about six feet from the ground. My friend wanted that swarm of bees, but we did not know how to get them off, and had nothing to put them in unless we could get them into a shirt (I carried one swarm four miles in a shirt three years ago).

Well, to begin operations I took my bee-hunting feeder, scooped a few bees off the tree, and found the queen. Then I clipped her wing and set her and a few bees in the feeder on a limb where I wished them to settle; but the bees flew back to the tree, and the queen fell to the ground. I picked her up and replaced her and a few bees on the limb. This time she got out and I did not see her. I soon saw that she was gone, however; and, without moving my feet, I stooped down and began looking for her among the leaves. The bees also joined in the search and closed in around me. My friend said he thought they would swarm on

my head; so, not wanting that experience, I stood up, and, to my surprise, the bees were clustering on my legs and body. Crawling upward they got around my neck. I imagined I looked like a picture I saw in GLEANINGS some time ago.

My companion began looking for the queen on my clothing. My coat was off, and my vest open. He finally saw her go into the inside pocket of my vest, so I thought the best thing to do was to try to get the vest off, which I succeeded in doing by being very careful not to hurt the bees. Then I hung the vest on the end of a limb and stepped back a few paces, when the bees soon left me and went to the vest. In a little while all was quiet. My friend took off his open-front shirt. We tied a knot in each sleeve and, holding two corners each, got under the vest, brought the four corners together at the top, and that swarm was fed and clothed without giving us a sting.

On June 4 I opened a four-frame nucleus to cut out some cells, but had made a mistake of one day, as a queen had hatched and three cells were torn open. The queen was removed from one; the next was dead in her cell, and the newly hatched queen was in the act of stinging the third when I got my eyes on her. She was in just about the same position as a queen depositing an egg in a cell. I rescued the queen in the cell, put a little wax on the hole, and caged the cell with three others, and they all hatched in a day or two.

Mayfield, Pa.

## A NUMBER OF PRACTICAL WAYS OF USING THE BEE-ESCAPE BOARD

BY J. C. PARKS

As a super-cover I find the bee-escape board with a  $\frac{3}{8}$ -inch rim as regularly made by bee-supply manufacturers to be more satisfactory than the regular super-cover or a wire-screen super-cover. The former is too fragile and too easily warped out of shape, and the latter is always so glued to the frames with propolis that in prying it off one soon bends the screen and destroys the bee-space.

If the beekeeper wants a sealed cover he can just lay a small piece of tin or thin

wood over the hole; or if he is a crank about upward ventilation he can cover the hole with a piece of thin foundation, press a piece of wire cloth down on that, then cover with burlap and put on the telescope cover. The bees will gnaw through the foundation and make as large an opening as they desire. As colder weather comes on they will begin to close it up gradually, but will never close it entirely unless there is a very large entrance, or it has some small opening somewhere else.

For feeding, the escape-board is very convenient. Just take a 5-lb. friction-top pail and punch about three small holes in its cover near one edge. Make a mark on one side of the pail, so that, when you put on the cover, you can let the holes you have punched come on the same side as the mark. Then when you invert the pail you can always tell when these holes are over the hole in the board.

The reason for punching the holes near one edge is that, if you wish to put two pails on at once, the bees can get at both of them.

When feeding, put on an empty hive body or super, and the hive-cover over that; and if the weather is cool, packing should be put around the pails.

If the hole in the escape-board comes directly over the cluster, thick syrup can be fed in as cold weather as we ever have in Alabama. If you wish to feed, slowly stop up with wax one or more of the holes in the pail cover.

To feed hard candy, just lay it over the escape hole, or partly so; put on your packing, and the bees will cluster right on the candy.

To introduce by the queen-cage method, turn the board rim side down; put the cage in the hole, wire cloth down. Close the hive, and do not open it for a week; and, nine times out of ten, your queen will be laying.

When working among my colonies I keep two or three extra boards with me. When I take off a super or hive-body I set it on a board with the rim side up and another on

top, so no bee can get out nor robber get in.

In carrying combs of honey or brood about the yard I use an empty hive-body with boards on the bottom and top. As an escape-board it has one fault. It cuts off ventilation, almost causing the bees above to smother in hot weather; and after they have all gone below, the honey gets too cool to extract well. This fault can be remedied in a great measure by boring several two-inch auger-holes distributed about over the board, and tacking wire cloth over them. When the board is in use for other purposes than an escape-board these two-inch holes should be plugged up from the under side to keep the bees from plastering them over with propolis. If they do get clogged with propolis they can be cleaned by pouring boiling water through them.

I think you can always buy these boards cheaper than you can make them yourself unless you are entirely out of a job, and they will be much neater than those you make. However, if you do want to make them, get some plain  $\frac{3}{8}$ -inch ceiling—any width will do, but better 6-inch for ten-frame size, and some  $\frac{3}{8} \times \frac{7}{8}$ -inch strips. The strips may be ripped out of the ceiling. Cut the ceiling in a miter-box, the outside length of the hive. Make a rim out of the  $\frac{3}{8}$  stuff the size of the hive, and nail your ceiling on this rim, letting the tongue project on one side and the groove on the other, so they can both be ripped off. Make them in a form so they will be square.

Scottsboro, Ala.

---

## THE EXPERIENCE OF A LIFETIME TESTING NEW SCHEMES

BY G. C. GREINER

If it were possible that one issue of GLEANINGS could be more interesting and valuable than another, the Nov. 15th number takes the lead. Several subjects are spoken of that deserve special notice.

Under the heading "A Word to Would-be Inventors," in that issue, the editor gives some valuable hints to beginners and those contemplating beekeeping which, if they will heed them, will certainly keep them on the right track. The whole paragraph under that heading so completely covers my experience of nearly a lifetime of beekeeping that I can heartily endorse every word of it. I am not a scientist; but being naturally inclined to take a great interest in all mechanical devices I have, during the last fifteen or twenty years, either actually tried or thoroughly investigated all the inventions that were brought out in the various

bee-magazines during this period—especially those whose originators claimed to be perfect swarm-controllers.

To judge from appearance, together with my actual experience, I invariably found all these new inventions altogether too complicated, too difficult to manufacture, and, consequently, too expensive for the everyday beekeeper who tries to make the two ends meet. To manipulate some of those complications according to the directions of their inventors would require a well-trained engineer or machinist.

The less experienced beekeeper or beginner who has not yet decided what kind of hive to adopt for future use can unhesitatingly take it for granted that the simplest, the plainest, and the cheapest hive is the most profitable for the beekeeper whose object it is to produce honey at a fair living

rate. Even a portico is a useless attachment, and in many instances cumbersome.

At the National beekeepers' convention in Buffalo, many years ago, Mr. Doolittle said in his address when discussing the various hives, "Is it the hive? No, it is the man." A more striking truth was never uttered.

Nearly forty years ago we started the manufacture of a double hive, claimed by some so-called inventors to be the only practical hive with which to make a fortune keeping bees. The brood-chamber consisted of two hive bodies—one inside of the other, with a  $\frac{3}{8}$ -inch air-space between the two. It also had ventilators through both bodies to connect the brood-chamber with the outside world, and a portico for good looks. All in all, it was a tasty-looking hive when finished with two coats of paint. Great as were our expectations of this hive it did not winter well nor insure any special advantages over plainer-made hives in spite of its great expense. We soon learned that a cheaper hive would give us better results all round if properly managed. Mr. Doolittle's Buffalo truth dawned upon us, even at that early date.

On page 899, same issue, Mr. Ritland gives a description of his motor cycle transformed into a power saw for hive-making, which interested me very much. As a make-shift an arrangement of this kind may give tolerably good service. I have studied the problem of using the power of an automobile in a similar way, but always came to the conclusion that a two or three horsepower gasoline-engine could be arranged to give better satisfaction. The cycle as well as the auto is a more or less cumbersome affair in a hive-making establishment. It requires room for lumber, room for the finished stock, and some elbow room to make our work convenient. But the main trouble with the average beekeeper would be the lumber question. Unless we are very favorably located it is almost impossible to secure lumber of desirable quality, such as our bee-supply establishments furnish us with our orders.

During last season's campaign I had occasion to order a number of hive-bodies and super outsides to make up a shortage. The work was all finished, except painting, when the foreman of a neighboring planing-mill called at my shop. I took special pains to call his attention to the quality of lumber used in my order; and I could see by his looks, although he did not say very much, that he greatly admired it.

But there is another point that would-be hive-makers should take into consideration. Many things we beekeepers need in the line

of our outfit require high speed and special machinery to manufacture. It would hardly pay to spend our time trying to make our own supplies when we have not the facilities to do it properly. We had better occupy our time in some other direction, and order our needed supplies from the regular supply-manufacturers. In this way we get things better and cheaper in the end. In case we should desire goods of special construction, not listed in the catalogs, an order with correct description and measurements will bring them to our doors.

Another interesting feature of the Nov. 15th number is the views on the winter-case problem by Mr. Ames, pages 889—892, and Mr. Holtermann on the three following pages. I do not wish to cross bats with either of the two gentlemen; but the experience of many years of beekeeping compels me to differ with them on several points. Having made the production of extracted honey my main business for years, I know from almost daily observations that for convenience of management a combined winter and summer case, or even bottom, as described and illustrated by Mr. Ames, is out of the question. We could overcome its inconveniences better when producing comb honey than we could when producing the other; but for convenient, unobstructed, and systematic work in the beeyard, hives must be placed on separate stands in straight rows, about two feet between the hives, and from six to ten feet, according to the space at our command, between the rows.

The objection of some beekeepers, that the uniform appearance of a beeyard frequently causes loss of queens, is more imaginary than real. It may confuse the human eye, but not the animal instinct. A queen is no more liable to miss her home than a dog to lose the trail of his master. Nature's instinct will guide them where human skill and ingenuity will fail.

The confusion Mr. Ames speaks of is a new disclosure to me. It is something I have never experienced. If the cases are properly made, if bees are in winter position, if tools and everything to work with are on hand, packing in the fall and unpacking in the spring goes like clockwork. Not a mishitch of any kind, nor confusion, need be encountered.

Judging from the illustration, Mr. Ames' cases may be a little more artistic in appearance than mine—a point I admire; but for efficient service they are no better. Mine, made of dressed matched lumber, covered with rubber roofing, are as nearly air and water tight as mechanical workmanship can

make them. The metal binding strips Mr. Ames uses are all right, neat, and tasty. I use wooden half-round strips the whole length of the roofs, which also fill the bill.

May I ask Mr. Holtermann what becomes of the excess of moisture in hermetically sealed hives, for which he feels so anxious to furnish an exit through porous packing above the bees? I never have any trouble from moldy combs, neither do my bees suffer, so far as I know, from this moisture. It seems to be natural instinct of bees to seal their winter quarters as nearly airtight as bee-glue can make them. If this were detrimental to the welfare of bees nature would dictate otherwise. To be sure, we do not always follow nature's law in every respect, nor the animal instinct indiscriminately; but the nearer we comply with either, the less liable we are to make mistakes. If it serves our purpose any better, if we can gain any advantages by partly or entirely ignoring nature's rules, it would be shortsightedness not to do so.

Since I have wintered my bees for many years with sealed covers, it proves that upward ventilation is not necessary or desirable. With about six inches of chaff packing above the cover, the much-dreaded

formation of frost or ice under it is next to impossible. Can it not be possible that bees need this moisture for their existence during winter? On the other hand, if Mr. Holtermann has always wintered his bees with upward ventilation through porous packing, and has thereby secured some benefits, it simply proves that neither method can pass as a cast-iron rule. Bees will winter, ventilation or no ventilation, and they may succumb with either. There must be other factors that decide the matter.

A word about the lumber. I cannot agree with Mr. Holtermann that half-inch lumber is better than one-inch. A winter case built of half-inch stuff is not nearly as strong as when the thicker material is used. Thin lumber does not hold nails or screws as well as that twice its thickness. We have to pay the same for one-half as for one-inch lumber, so there is no gain financially by using the thinner kind. To let the sun's heat penetrate more readily is of very little account. The object of a winter protection is not so much for the atmospheric heat to be absorbed as for the inside animal heat to be retained. Which of the two kinds will do this more effectively?

La Salle, N. Y.

---

## A BRIEF HISTORY OF MY BEEKEEPING LIFE

BY G. M. DOOLITTLE

When I was about ten years old father bought a colony of bees, much to my delight. This colony increased till at the end of four years we had some fifteen or twenty colonies, all in box hives made of rough lumber as it came from the sawmill, each having a capacity of about 2250 cubic inches, being generally a foot square and 16 to 18 inches high. When I was 14 a second swarm began to issue as father was about to leave home, and I was told if I would save it I could have it as my own. As is the custom with most after-swarms it alighted near the top of a tall apple-tree; but, not to be beaten, I climbed to the "dizzy height" and secured it in a cracker-box, as all the hives we had made were occupied by earlier prime swarms. I watched this colony work with far more interest than I did any of the other colonies in the apiary. The box and contents were left under the tree the swarm alighted on, which was distant from the house and the apiary some twelve or fifteen rods. As fall drew on I often "hefted" the box on cool mornings, finding that a gain in weight, quite perceptible, was made as the buckwheat bloom progressed, till, after a little, I had quite reasonable hopes that

they would have sufficient stores for winter. A little later, as frosty nights came on, I would go mornings and slightly rap on the box to hear the bees give me a "good morning" salute by their answering buzz. One Monday morning I gave the usual salutation; but, instead of the salute, I got a hollow vacant sound; and on lifting the box I found it empty, with the inside near the bottom smoked and charred in the killing of my pets, which I later found was done in a piece of woods a third of a mile away.

That ended my first experience as a beekeeper, as in "taking up" an old colony or two a little later on father found that the much-dreaded disease now called American foul brood had gotten a foothold in our yard; and it progressed so rapidly that the fall of the next year found us without a living colony, father taking the precaution to "brimstone" all that were living before robber bees had a chance to carry off the diseased honey. This honey, such as did not have brood mixed with it, was strained, scalded, and used, and the rest of the combs were rendered into wax.

I was still so much interested in bees,

however, that, whenever I ran across any thing in the *Rural New-Yorker* (the only paper father took in those days), about them I read it with more interest than I did the "story page."

The season of 1868 was an extra season for bees—so much so that colonies filled their hives, clustered out, and built combs under the benches the hives stood on, some colonies storing from five to twenty pounds there. This made bee-talk very common in this locality, and caused my old love for the bees to burn brightly again, so that the spring of 1869 found me with two colonies of my own as the starting-point of my real beekeeping.

Wishing to know all the minutiae of this interesting pursuit I procured all of the bee-books of that day, and subscribed for the bee-papers. And to these books and papers I have always credited very much of the success, whatever it may have been, that has come to me in all of the years since the season of 1868.

As my ambition led me toward the practical side of beekeeping, "Quinby's Mysteries of Beekeeping Explained" captivated me beyond all of the others; and after all these years the turning to the index of that old book brings to mind pretty much all that the hands, now moldering in the dust, wrote nearly three-fourths of a century ago.

To tell the truth, beginning with 1870, beekeeping for the next thirty years was little less than "one round of endless pleasure." I dreamed of bees nights, and thought of them during my waking hours to an almost absorbing extent; and to-day I am still a student, believing that there are many unexplored regions (which I should like to explore would circumstances permit), and much room for still deeper thought, even on the practical part of this pursuit.

Besides the books and papers, Elisha Gallup, a writer on practical beekeeping during the seventies and early eighties, helped me very much through his private letters. I still have a stack of these some three or four inches high. His great patience with me and my questions has been the "mainspring" which has "moved me out" in answering the questions regarding beekeeping sent in to me. Many and many have been the nights during the past forty years in which I have been up long after I ought to have been in bed, answering questions as best I could in order that I might pay the debt I owe E. Gallup; for he would never take one cent further than postage for all the help he gave me. He, too, has passed to "his long home."

In 1870 I wrote my first article for pub-

lication, sending it to the *Apiculturist and Home Circle*, published in Mexico, Mo. This article was written over three times before I dared let it go, as I feared that it would never be published. But the editor saw fit to publish the matter, and since then I have been "scribbling away," honestly trying to help some one a little, in order that, in a small way, I might compensate for the great amount of knowledge I have gained from the writings of others.

The two colonies bought in 1869 had increased so that I started the spring of 1877 with 67 colonies; and from an old diary of that year I find the following:

I have a chance to rent the old farm which I have been working on shares for father the past 11 years, and so I start out this year with nothing but the 67 colonies of bees to depend upon, this first day of April, 1877. It looks a little venturesome, but I hope it will come out all right.

Under date of May 27 I find this:

Apple bloom, which has given a good yield of nectar, and given the bees a good supply to last till clover bloom, has also given quite a start in the boxes that are on the best colonies.

Again, date June 13:

Have decided to work two colonies for extracted, and 65 for box honey.

August 3:

White clover began to secrete nectar June 17, and on the 20th the most of the colonies were well at work in the section boxes. Basswood opened July 14, and lasted till the 28th, which, with teasel since the 20th, yielded abundantly. Now the teasel has failed, and I can work only early in the morning and after sunset, taking off honey on account of robbers.

August 31:

Buckwheat began to yield nectar the 16th of this month and closed the 28th, which is, without doubt, the last surplus for the year 1877.

October 1:

The result of this season with the bees sums up as follows as to honey:

Box honey (white), 8761; box honey (dark), 1523; extracted, 893. Total, 11,177. The average yield from the 65 worked for box honey was 158 pounds. Average yield from the two worked for extracted honey, 446 lbs. Average from the 67 colonies of both box and extracted honey, 166¾ lbs. The best colony worked for extracted honey gave 566 lbs. Best yield per day was from July 21 to 24, being 66 lbs., or 22 lbs. per day. Three colonies worked for box honey gave 896 lbs.; the best, 309; second, 301; third, 286. Several others did nearly as well, but no record was kept.

November 29:

Honey all sold. Received for what I could spare, \$2492.28. Have now concluded that I can "run alone" with the bees, so have disposed of my interest in the old farm and start out as a specialist in apiculture. Since starting in 1869 the bees have paid me a little over \$6000 above all I have paid out for them.

After 1877 I increased the bees till I had about 250 colonies; but in 1880 father became helpless and I had to give so much of my time to him for the next four years, or till he died, that the number was reduced to

an average of about 100 colonies. Two years ago last July my wife, who had been of very great help to me during all these years, had a shock of paralysis, which left her helpless; and in order that I might be the main one in caring for her I now have only five colonies—just enough for a little relaxation from the many cares resting upon me.

In closing allow me to say that, while I had many more colonies from 1877 till 1900 than I had during the first-named year, yet in no one year after 1877 did the income from the bees equal the amount I secured in that year, although some years it very nearly reached it. Reason: Not till 1888 did I sell a single pound of white comb

honey for less than 25 cts. a pound, and in 1874 my whole crop of comb honey brought 28½ cts., the dark being included with the white. Several years during the 80's and early '90's, ten to eleven cents was the average, and in 1899 the average, when footing up for the whole crop of comb honey, was a little less than 9 cents a pound. Furthermore, since 1900 basswood has failed to give the crop it formerly did, through failing to secrete nectar some years, and because all that was available for lumber was cut off, owing to this lumber bringing \$30 to \$35 per 1000 feet. Better basswood lumber could be bought in the '70's at from \$8.00 to \$10.00.

Borodino, N. Y.

---

## THE COST OF RUNNING AN AUTOMOBILE

BY A. W. SMITH

Your editorial statement, page 789, Oct. 15, that it costs ten cents a mile to run an automobile for outyard work, must refer to a \$2000 or \$3000 truck. Allow me to give an idea of what it costs me to run my little old knockabout Ford. Last March I bought an old touring-car. With saw and ax I chopped and sawed off the rear seat with its part of the body, and put on a home-made box, just the size to hold a certain number of hives.

Well, my speedometer shows I've run this machine a little over 3000 miles to date. Do you suppose it cost me \$300 or more to do it? I know it has not cost me a fourth of that amount. We do all our extracting at home, hence we have given the machine plenty of hard work. For instance, one day we drove it 90 miles, stripped hives, brushing bees from combs, and 45 of those miles the old auto carried such loads as we should not put on. Do not for a moment think it cost me \$9.00 to do this. Call it a fourth that amount, giving discount for cash, and you will be nearly right.

To do that with a horse would likely cause some depreciation. Formerly, when using horses it took from two to three hours to drive over, and an hour longer to drive back if heavily loaded, and the driver had about done a day's work if it was a hot summer day. Again, one does not care to drive a sweaty horse into a yard of 125 hives, but he can run an auto right up to their front doors. If my old Ford ever was stung I never heard her complain or prance about and kick over the traces as some horses do in a similar position.

Then see the fun one has in sailing through

the air at a 25-to-35-mile clip. Repeatedly I have made above twelve miles with the machine in 25 to 30 minutes, and on arrival was ready to get at my work. It is not every beekeeper's horse that can make 20 miles per hour, and keep it up night and day if necessary, even with the level roads we have here.

I would say for a beekeeper, buy a runabout; knock off the back hood or cover; put on a box to suit the taste, then put on steps or mud-guards, one or two long tool-boxes, and "go it." If the beekeeper does not know the steering-wheel from the differential, I would advise him to buy a new car and run that carefully until he does know something about an auto. If he has a friend (good and true) who understands autos, and wishes to buy a used car, he might get that friend to go with him and examine such a machine. Even then it is well to keep close enough to see the seller is not asked how much is in it for the expert.

Some might like to know the course I pursued. Through the winter months I would go through garages and sales places looking for used cars; but although there have been hundreds of thousands of machines built of the make I wanted, there seemed to be very few offered for sale, and not a single one could I find for less than \$300 and up to \$400. At the same time I could find a great many of the formerly high-cost cars at \$200 to \$250. The more I could not find the car at my price, the more I wanted one.

Finally I made up my mind it was a Ford or none. The big cars that carried 4-inch and 4½-inch tires were heavy, and it might

cost 10 or even 20 cents per mile to run them over country roads; and I had seen them stuck in mud or sand that I know my car would go through with a smile. I finally learned of a man some miles away who had several used machines for sale.

He was overjoyed to see me (look out for the glad hand when you talk with auto dealers). He showed me a couple of old cars I did not want, and then the one I bought. Said he, "In that car is the best engine I ever ran," which I think was the truth; but some other statements he made I know were lies.

"How much?" said I.

"Well, seeing you are a friend and came away over here, I will sell to you for \$275."

"Well," I replied, "seeing as how I am a friend of yours, I won't pay it. What time does the first train leave for home?"

In the course of the conversation he asked me what I thought the machine was worth. I took \$250 from my pocket, and, handing the cash to him, said, "If you will give me \$10 and the Ford it is a trade." His wife slipped the bills into her pocket, and I knew that I would never see them again, and probably *he* would not.

"Shall I go home on the train or by road?" I asked.

"It is a shame; but as trade is dull at this time of the year, and I want money, I guess I had better take you home."

I know to a gallon how much gasoline I have used, and how much of the best oil, and can form a fairly correct idea how much wear and tear on tires has taken place. Then you speak of depreciation. According to your scale it would not take long to arrive at a point where there would be none. I believe my old car has reached it; but I hope you will understand she is a long, long way from the scrap-heap. I would not sell her to-day for \$240. You say repairs will run from \$50 to \$100 per year. A beekeeper has no business inside a garage door unless he wants to be robbed. If he does not know how or cannot learn how to do his own repairs, he'd better buy a wheelbarrow.

Of course, one may be careless or drive recklessly, and have an expensive accident. I had one. I was driving to an outyard that I was getting in shape for winter, when I met a farmer with twenty cows. My machine hit one Holstein a glancing blow on the starboard hind quarter—result, one broken glass in wind-shield, \$3.50; one broken glass in headlight, 35 cts.; one bent mud-guard, ten minutes' work; one angry farmer, and one surprised cow. I had been driving quite slowly; but had I been going 35 miles per hour *it is* quite possible the cow would have been more surprised.

See the pleasure one can get from an auto. For instance, suppose Mathilde and I wish to take a little ride of 100 miles and call on beekeeping acquaintances. 'Thilde and I get in with full expectation of going there and coming back; but if we knew it would cost ten cents per mile, or \$10, would we go? No, sir; we'd put the \$10 at compound interest, sit in the hammock, and coo.

I never had much experience in driving those heavy big-tired cars; but I am willing to concede it may cost 10 cts. per mile to run them. I can not see how one can run up such an expense driving a light-running auto unless he goes joy riding.

Birmingham, Mich., Nov. 7.

[Our figures as explained in the editorial referred to were for the average automobile costing about \$1000, and we had reference especially to our own 1000-pound truck. We stated that the depreciation and tire expense on a Ford, at about \$500, would not run over half, or perhaps five cents a mile, including every thing. We are quite prepared to believe that the expense in running a second-hand Ford bought for \$240 would not be over half the latter figure, and so, apparently, we agree quite well after all.

We do not wish to be understood as proclaiming that every time the truck is run five miles it costs us 50 cents. We simply mean that, *on the average* for a car of this capacity, the expense, counting interest on the investment, depreciation, etc., is apt to be not far from 10 cts. a mile.—Ed.]

---

## WHY I FAILED IN BEEKEEPING FOR A DOZEN YEARS

BY WALTER JACK

"I have no hard-luck story to tell, but I know that I might have succeeded much better had I studied the literature of the business," was the remark of a farmer who had an apiary. This farmer gave me a few interesting facts concerning why he fell

down in the business, and I will repeat them here.

"I see no reason why every farmer cannot keep a few colonies and produce the family honey supply; but when the farmer who thinks he can make easy money by engag-

ing in beekeeping he is going to lose a great deal easier. The farmer should read the books and the periodicals, and study the catalogs devoted to the art. This is where I failed. I thought I could keep bees any old way; and when I was in doubt I would wait until I saw some fellow who, I thought, knew a little better than I did. I fiddled around for two or three years, asking of this one and that one the simplest questions about beekeeping. I could have learned in two or three days' careful reading more than I learned by feeling about in the dark.

"I looked about for equipment. I bought old hives, the covers of which were rotted and worm-eaten, and the frames ready for kindling-wood. I guess I had a lot of swarms that were ashamed of the quarters I offered them and they 'flew the coop.' I lost bees year after year from disease and dissatisfaction. My colonies wintered poorly, and it is now a wonder to me that any survived. One year I dropped from about thirty stands down to about two or three. The bees seemed to swarm whenever they pleased, and at such times as I would be in a back field pitching hay. I knew of no method of controlling swarming; and when I did hear of them, they sounded as strange as the stories in the Arabian Nights.

"A beekeeper told me that I would have to get down to business, look after my bees, buy some good equipment, and read up on the art. I finally arranged to lease my apiary to him for a year, and my cash return was ten times as much for the one year as it had been for six years before that, and I was at no loss in time. The next year I thought from the few things I had observed that I could handle the bees myself. The money of the previous year looked good, and I thought that, with the increase, and with the tenant's share, I could have a nice sum in the fall. When I took hold of the bees I had a nice account of enthusiasm to draw on, but I fell into the old rut. I had a dairy of twenty or twenty-five cows. My attention was again divided between the apiary, the farm, and the cows, and the bees got the least amount of attention.

"My bee tenant told me that, were I to make money out of my bees, I should look after them, let the scrub cow hustle for herself, and I would make more out of my bees than out of my dairy. I believe him now. I believe I should have been cash ahead had I sold the scrub herd and just devoted my time to the bees.

"Last year my son returned to the farm and made a proposition that he would look after the farm, the dairy, and all crops, and turn the poultry and the bees over to me.

Well, I thought that I could help out on the farm, and again I neglected the bees for the dairy. I thought it was up to me to boss the farm; and the best end of the farm, the apiary, failed to return the anticipated amount, yet it paid, even in the face of neglect.

"I have been keeping bees for a dozen years. I see why the farmer fails to make the success he should. He divides the time on the farm with the cows, the hens, the horses, and the bees. He does not make the apiary a department of the farm. He should establish it on the same basis as the millinery or the rug department in a department store. These have to pay their way or they are eliminated. If the apiary is recognized as a department which will pay its way, and the farmer studies beekeeping, and keeps abreast of progress in the art, he can make it go.

"If scrub cows are taking time from a profit-producing apiary, cut out the scrub cow or turn her over to the hired man and look after the bees.

"Give attention to marketing the product. Here is another reason for my failure; and with neat cartons and cases for the honey the product will find its way to customers who ask for repeat orders, and bees will pay."

Ashtabula Co., O.

## Bee-dreams of Golden California in Winter

BY GRACE ALLEN

I walked within our yard one winter day  
When not a bee from out a hive had stirred,  
When soft, across the air so chill and gray,  
It seemed as though a droning song I heard.

"You think we sleep, and only sleep?  
Across our darkness visions sweep  
And through our silence whispers creep  
Of golden California!

We thrill with dreams of cloudless skies,  
Where sunlit dawns and days arise;  
Our winter sleep is stirred with sighs  
For golden California,

Where every stroke of passing time  
Is like a vibrant, ringing rhyme,  
And winter's days, like summer's, chime  
In golden California.

Where roses redden through the hours,  
And bees that pause for nought but showers  
Hang o'er the manzanita flowers  
In golden California."

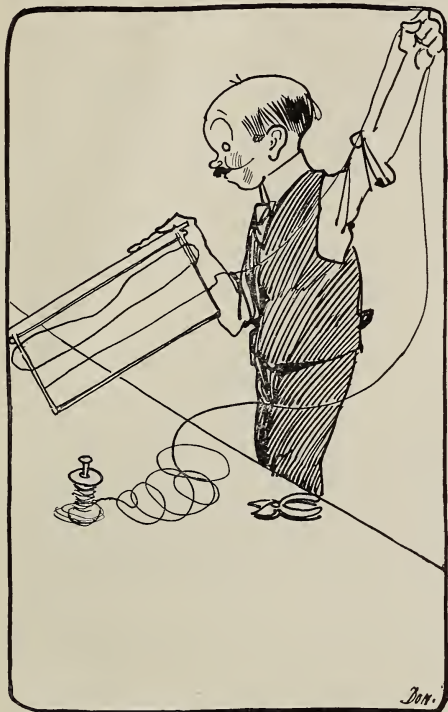
### THE POET'S REPLY

(with apologies to our readers, as it's sorta 'tween us and the bees).

Dear bees, we're in the same position!  
And now we pray you softly listen—  
This year they hold an exposition  
In golden California;

So please *you* store a wealth of honey,  
Then we will calmly take the money  
And hie us to that land so sunny—  
Golden California!

# Heads of Grain from Different Fields



**The Backlot Buzzer**

*Many a novice has heard that "birds of a feather always flock together," and then gone and tried to put two queens in the same hive.*

## Some Answers to Questions on Starting with Bees

Hereafter no one need expect me to answer letters privately, even though a two-cent stamp is enclosed, for I am too busy with other work, and cannot take the time to answer them all. Although beekeeping is my hobby, it is only my side line, as I am a rural mail-carrier, and am on the road six hours in winter, and the spare time I must make use of for preparing spring operations.

The following are answers to questions sent me.

I would start in the spring by buying a colony of bees. I would use only standard factory-made hives the size depending on location and whether running for comb or extracted honey. The ten-frame is best for central Wisconsin, especially for extracted honey. I use nothing but a two-inch bottom, open on two sides, which I get from Gus Dittmer.

Bees can be kept on almost any town lot as long as they are compelled to rise in their flight to and from the fields by some object as brush, bush, trees, fences, etc. If handled at the right time of day and night, days clear, and during a honey-flow, they will not bother. Most lots have some out-of-the-way corner. I advise starting in a small way, and with good gentle Italian bees.

As to profit, this year was poor, but I sold \$120 worth of extracted honey from 18 colonies, and kept a barrel for myself and friends.

The number of colonies that can be kept in one place depends upon the country. I had 24 last season, and increased to 33, which I am wintering in a cellar. Half a block from my place are six colonies; two blocks away there are 25; half a mile north are 50 to 55;  $\frac{3}{4}$  mile southwest, 35 or 40;  $1\frac{1}{2}$  miles south, 30, besides a lot of farmers who keep one and two colonies apiece. Last season I was the only one around Fall Creek who had any amount of honey to sell. CARL BAUMBACH, JR.

Fall Creek, Wis., Jan. 7.

## Finds Smoke Introduction Successful

I note a tendency to throw cold water on Mr. Miller's "direct-smoke introduction of queens" in bee publications lately. I consider it one of the best helps in bee manipulation of recent date. After the basswood flow I went through the beeyards caging the best queens, introducing them to the ones with poorer queens; and, when fixing them for winter, I was surprised to find so many young queens in colonies from which the good queens had been removed, and so many of the older queens accepted satisfactorily.

In carefully looking over the reports, there is usually some cause of failure evident among them, as, for example, trying to run the queen in when the robbers had grown a little bothersome while trying to find the poor queen. Or perhaps some little detail of the plan was overlooked.

In a late number of the *American Bee Journal* Miss Wilson, of Marengo, Ill., says they let the hives remain queenless one day before smoking in the new queen.

The beekeeper should have the good queen caged and all ready to smoke in as soon as the poor queen is caught out of the hive. Of course he should remove the poor queen as carefully as possible to avoid disturbance. The real point is to get the new queen into the hive so there will not be a bee but still thinks she is their old queen. Keeping a colony queenless one to three days gives the bees a chance to raise another, and, consequently, makes it harder to introduce a new queen.

Colo., Iowa.

D. E. LHOMMEDET.

## False Face instead of a Bee-veil

The first time I had any occasion to handle bees was when the old gray mare turned over one of the bee-gums, and we had to set it up again. I told my father to wait and I would get my false face. The mask was made of an old black hat with red bound around the eye holes—the whole combination just the thing to "sick" the bees after me.

I slipped up to the overthrown hive, and all at once they came at me like hot shot. They got under the false face in a moment, and then the fun began. As it was tied on with new strings it was hard to get off; but I finally tore it off just the same.

This quieted my bee fever for several years; but after a time we got some more, and since we all liked honey so well they were robbed to death. The following season I began reading, and going at the business in a different manner. I secured some good bee literature, and read up on the subject. I can now handle bees in a more businesslike manner; but I do not use my old false face. I handle them without veil or gloves. I have twenty-four colonies all in good condition.

Last fall I had a case of foul brood. Since I discovered it so late I could not save them. I just burned them—frames, combs, and all.

Hatcher, W. Va.

I. C. QUESENBURG.

### Where the Power Truck Saves Time

I keep 600 colonies in six out-apiaries, and run for comb and extracted honey. Last season I bought a one-cylinder ten-horse-power motor truck, 1500 lbs. capacity. I find it strong enough, with sufficient speed for all purposes.

My apiary is arranged with a road through the center. I enter the apiary with the truck and supplies, stop near one end, attend to the rows near the truck, move up a few rows, and so on. When done with one apiary we load on every thing that goes, and are off to the next.

It takes the place of one double team and spring wagon; also one single horse and rig. It saves about one man in time, besides making the work much easier and more pleasant. It is especially valuable for moving bees and taking off comb honey after the flow has stopped in the fall. Two men can go to an apiary after the flow has stopped, take the lids off, smoke the bees down, take the supers off, and stand them on end behind the hives, then go over them, smoke the bees out, brush them off, load them on, and take them away without having any spoiled by the bees—something impossible to do with a team.

Standish, Cal.

H. H. HARTMAN.

### Beemen, Wise and Otherwise

Out in California there is a beekeeper who has kept bees (as well as moths) for over thirty years in the same yard. Some of his hives have the bottoms nailed on tight, while in not a few of them I found the frames nailed fast in the hive. Among the conglomeration I counted eight different kinds and sizes of brood-frames and five sizes of hive bodies.

Several barrels of slumgum had been thrown on the ground and in boxes, I suppose to help the moths over a poor honey season. One pile which had been undisturbed for six years contained some sixty or seventy supers full of moth webs.

In Hot Springs, Ark., a beeman had on one hive three supers, one reading "Bottled in Bond," another "Heinze's Pickles," while the one on the top announced a dye for whiskers. The bees seemed to be quite happy notwithstanding.

Here's another beeman I know—J. Ross Miller, of Montrose, Col. A worker? One morning when I was his hired hand I woke up to find the lamps lit and breakfast on at about five o'clock, my usual time for getting up. My boss had beaten me ten miles. He had hitched the team, driven that distance to an outyard, and had brought back a load of supers so we could all keep busy scraping and grading.

Mr. Miller is certainly one of the best graders I ever saw, while as an inspector he beats them all. I helped him pile up and burn several hives of his own bees. One had three full supers of nice-looking honey. He simply burned bees, hives, frames, supers, and combs down to white ashes. But that stamped out the foul brood. He has five outyards, and takes his assistants out in an automobile.

One of the best-known beekeepers in this country once spoke of me as "the wandering beeman." Wandering is right. Beeman is wrong. But I claim to know more about bee locations than a wild goose.

Hot Springs, Ark.

L. W. BENSON.

### Shipping Bees in a Refrigerator Car

The experiment of shipping bees in a refrigerator car was made by F. Grabbe, Libertyville, Lake Co., Illinois. One hundred colonies were put into a car that had been iced twelve hours before loading. The car left Libertyville about noon, August 15, and was run direct to Chicago, thence to Burlington, Iowa. There the car was reiced, and continued on its journey to St. Peters, Missouri, where it arrived August 19 at 4:00 A. M. The bees were in excellent condi-

tion, and were loaded on wagons and hauled four miles north, near the Mississippi River. The temperature was about 95 in the shade while the bees were in transit. He shipped the bees for the Spanish-needle honey crop in September, and got about sixty pounds of extracted honey per colony.

The freight charge on the car from Libertyville to St. Peters was \$70. The two icings cost \$6.50, and the hauling to the river cost \$10, or a total of \$86.50. The distance covered was about 500 miles.

Mr. Grabbe has had wide experience in conducting perambulating apiaries. He was connected with an enterprise in which a steamboat and several barges were used in transporting bees from place to place on the Mississippi, culling of willow and other bloom being the object. The expense, however, in maintaining day and night crews on the steamer ate up the profits. All moves were made at night, and on this account day and night watches had to be maintained.

Chicago, Ill.

J. L. GRAFF.

### Was the Leaf the Signal for the After-swarm?

I hived a very large swarm at 11 A. M. They went in nicely, and, to all appearances, were well satisfied. I was observing them at 4 P. M. when a bee alighted on the hive with a wad of leaf in its mouth. All at once the whole swarm was thrown into consternation, and they began to come out, and absconded. I am as positive of the matter as I could be of any thing of so minute proportions. Has any one else ever observed any thing similar? Is it possible that this was a signal for absconding?

Rising Star, Tex., Aug. 14.

J. W. BOASE.

[There are so many cases of swarms leaving the hive after a few hours that it seems to us more like a coincidence that the bee with the piece of leaf should have alighted at the precise moment when the swarm was preparing to abscond; that is, in our opinion, the bee with the leaf merely happened to alight at the same time, and this occurrence probably had nothing to do with the bees leaving.—ED.]

### Make Your Own Rubber Bands

On page 952, December 1, E. J. Ladd suggests the use of rubber bands for transferring. I just called up a large rubber store, and find that rubber bands cost \$1.75 a pound, while a pound contains about 40 bands of the size necessary.

Get wise and make your own rubber bands. If you haven't an auto, buy old inner tubes at from 6 to 10 cts. per pound, which you can cut up into wide or narrow bands as you choose. Get tubes large or small, according to the size of the bands you need. These will make stronger bands than any thing you can buy new at a rubber store.

Chili, N. Y.

L. F. WAHL.

### Flour Made from Sweet Potato as a Pollen Substitute

After experimenting with different kinds of imported meals and flour, I find the bees do not take to any kind readily. The next products I tried were flours which I made from the green banana, sweet potato, and cassava.

Each flour was put in separate trays and placed in the apiary, and a small piece of comb containing honey was put in each tray to attract the bees.

The flour made from the sweet potato gave the best results; and if I could have pulverized it as fine as wheat flour, the bees would have taken it more readily.

Four Paths, Jamaica.

F. A. HOOPER.

A. I. Root

## OUR HOMES

Editor

In the sweat of thy face shalt thou eat bread.—  
GEN. 3:19.

## THE GREAT ARMY OF THE UNEMPLOYED.

The Home paper below was dictated before coming to Florida last fall. Before using it, Ernest wrote me as below; but as it is already about the usual length I plan to take the matter of "the worthy unemployed" up in our next issue.

*Dear Father:*—When you wrote this, conditions were quite different from what they are now. Possibly you saw in the Cleveland papers that there were 61,000 men out of employment in Cleveland alone, a large majority of whom appear to be worthy men. I asked two or three prominent people in Cleveland if this could be possibly true. They said that it was absolutely a fact. In your write-up here you speak as though only the dissatisfied or incompetent were out of work. I thought possibly you would like to modify this before it is published.

A good friend at Palatka, Fla., has written me two very long letters in regard to this matter. I answered briefly by saying that here in my Medina home, and down in my Florida home as well, there is a constant and unfilled demand for competent laborers, especially good mechanics. Of course there are more or less tramps claiming they cannot get a job. One such came to me just a few days ago. He was fairly well dressed, a good strong fellow, and he wanted something to eat. I told him I could not give him any thing to eat, but I would give him work in the lumber-yard. He snapped me up quick by saying, "How much do you pay?" I told him we would pay him what he was worth. Again he asked, "How much do you pay?" I explained to him that I could not make any bargain in regard to the pay until I saw how capable he was, and how much he was worth. I told him the foreman of the lumber-yard would be fair, and pay him what he earned compared with the other help. He went on grumbling and cursing.

Now, this is a fair type of the unemployed that have come to my notice. There are a few who seem to be honest and willing, but who are too stupid to do things right. Well, in my answer to the brother I have mentioned, I told him he was crazy to insist that merchants should sell all their goods at *cost*, and that the manufacturer should pay his help all he earns, without any margin to pay for the use of capital and incidental expenses. In his reply he takes up a subject I had not in mind. He says Uncle Sam is selling goods and doing work for the people at large without any profit, and this is all right. I heartily commend it. I am glad to see Uncle Sam

take charge, not only of the mails, but also of the banking, at least to some extent; also taking charge of good roads; and I should rejoice to see him take charge of telegraphs, telephones, and even of railways when we as a people are ready for it. This man from Palatka is soured against the government; he is soured against God, and I fear he is soured against his fellow-men. His vision is obscured, as it seems to me, so that he does not see the good in this world of ours. He mentions a neighbor of his, a poor man with a family, who came to him with tears in his eyes, saying his folks were suffering, and yet he had traveled day after day hunting for a job. Well, now, although I do not know the circumstances I cannot help feeling sure that this man is either incompetent or else he will not do faithful and honest work when he gets it. He and the writer of the long letter have got into a fashion of thinking that Uncle Sam should relieve them from *responsibility*, hunt up work for them, and feed and clothe them, etc. Right here let me state that the philanthropic societies in our cities all over our land are fast finding out that there is no quicker way of spoiling a man, woman, or child than by doing things *for* them that they ought to do *themselves*. In the administering of help, whether it is money, food, or clothing, great care and good judgment are needed or you will do more harm than good. This poor man with a family, who sat down and actually shed tears because he could not find a job, could go to work and make garden *every day in the year* in that genial clime. Just now, October 3, he could plant potatoes, and get, say, \$2.00 a bushel for them, as I did last winter, or something near that price. He could do this as well as to do nothing. Do you say he has no ground? Well, he certainly can *find* ground near his home that he can work on shares; and just as soon as the people in that vicinity see him doing a man's work on a piece of ground, he will have a job with good pay, more or less.

My friend writes me this man has offered to work for fifty cents a day, and adds that nobody would give him any work, even at that price. Of course, I cannot say what the conditions are around Palatka, Fla.; but so far as I know, farmers and market-gardeners are complaining everywhere that the wages now demanded by competent men are more than they can afford to pay. Of course, there may be exceptional conditions on account of the war, and perhaps there

are times when factories are obliged to shut down, where, for the time being, there is a surplus of help; but the good energetic men or women who are ready to take hold of any kind of work never remain idle very long. What I have said about the high price of men's work will apply equally well to women. There is a continual complaint that the average help in the home costs so much nowadays that the good wife cannot afford it; and one of the worst troubles is, that the incompetent demand just as much as the expert help. Just one more suggestion:

The man or woman who goes to work with a sour face and her mind full of a feeling of the injustices that the working people have to bear, is not, as a rule, profitable help. It is impossible that it should be. But the cheerful or happy person who has pleasant feelings toward employer and all the rest of the world, including happy and pleasant feelings toward his Maker, is the one who makes a success in life, and is wanted and welcomed everywhere.

A few weeks ago a bright young man of foreign birth came here and wanted work. I spoke to our business manager, and he said our season was so nearly over we could not take on any more help—in fact, we should have to drop quite a few very soon. But the stranger looked so cheerful and good-natured, that I told him I could give him work for one day. I told him to cut down some trees that were dead and dying, and cut them up for firewood. I thought it would keep him busy all day. When he found out exactly what I wanted he went to work with such vigor and good nature that he had the job all done before noon. Then I found him some other work in the neighborhood, and he pleased every one of the neighbors. In a very few days he was wanted several times at once. One man especially who was laying stone flagging said he wanted the same fellow he had before; but the man was doing important work elsewhere, and could not very well be spared. When told of this he ejaculated, "Why, I *must* have that fellow. He knows just what to do without telling, and does it. He is worth two common men."

I presume the above incident could be duplicated in every community in the United States. If it is true, as my good friend has stated, that almost *half the people* in the United States are out of a job, it is a sad comment on poor imperfect humanity. But I feel sure it is *not* true. God forbid!

I fear my good friend *forgets* that even our government gets hold of some chaps every little while who use their positions

and authority to load up for their own personal use all they can get hold of from the government.

Here is something that has been going the rounds of the papers, and it seems that nobody can tell who originated it. It is a grand sermon, right along the line about which we have been talking—a sermon composed of only a single sentence. Read it, and see if I am not right.

If a man can preach a better sermon, or write a better book, or make a better mouse-trap than his neighbor, though he live in the woods, the world will make a beaten path to his door.

After the above was put in type our good friend from Palatka (H. H. Kollister) sent us a marked copy of *The Appeal to Reason*. In years past *The Appeal to Reason* has not "appealed" very favorably to *me*; but here is something in this issue that does appeal to my sense of right and wrong.

Help us to write into the Constitution of the United States: "War shall not be declared except by direct vote of all the men and women in the United States."

It occurs to me that socialism and Christianity can entirely agree and unite on the above sentiment, even if we cannot see things alike in other respects. May God hasten the day when war shall be declared in no nation unless the men and women vote for it. I say, may God *hasten* the day; for when that day comes that the *men* and *women* shall vote on the matter, *war will be no more*.

Our good friend, at the end of one of his long letters, has this vehement winding-up:

The Devil rules the earth, and he'll starve me to death unless I serve him. But while I must do that now (at least to some extent), I warn him that I will bombard his forts with tongue and pen until not an atom of his profit system remains, and God's children can live that life which Jesus taught them to. Brother Root, will you help? God's kingdom come.

H. H. KOLLISTER.

#### THE A. I. ROOT CO.'S EXHIBIT AT SAN DIEGO; MOVING BEES SOUTH BY RAIL, ETC.

The following, from Howard R. Calvert, explains itself, and I am sure will be read with interest:

Dear Grandpa and Grandma:—I am not quite as far south as you are, but I imagine it is almost as warm here as it is in Bradentown.

Jesse Warren and I are getting along finely with the exhibit. There are certainly great possibilities out here in the West for our business. For instance, Jesse wanted some honey for his throat (he has some bronchial trouble), and we couldn't find any nice white honey *anywhere* in San Diego. At one or two stores they had a little granulated amber honey.

The climate out here is fine for beekeeping. Flowers and orange-blossoms are blooming all the year.

There are four fellows here in the Y. M. C. A. who are aviators. Two of them are flying for the

government, and two are in the aviation school here. I see them flying almost every day.

There are many poor people out here, thinking there would be work in connection with the exposition, while there is none. There are thousands of men out of work, waiting for the exposition to begin, with Christmas near, and nothing to eat or drink. Many of them came from San Francisco, where they could not get work either.

I enjoyed my last trip down to Virginia on the box car, even more than my first trip. We had an

oil-stove in the car, and cooked our meals. It was pretty cold nights, but we had plenty of bedding and newspapers under our mattress, and so we didn't suffer with the cold. When we got the bees to the new location I made a camp and built a "shack," and we had a fine time for a week while we were getting the bees arranged. I also put up a fence across one side of the apiary to keep the hogs out. I love to live outdoors that way, because I feel healthier, and always have a big appetite.

San Diego, Cal., Dec. 21. HOWARD R. CALVERT.

## HIGH-PRESSURE GARDENING

### POTATO-GROWING IN FLORIDA, ETC.

Last April I told you about my nice Red Triumph potatoes, and gave you some pictures. Well, on this New Year's day, 1915, it would be my delight to take the readers of GLEANINGS through our Florida garden. We have had the largest amount of rain down here ever recorded in November and December; and had I not learned by experience we could not have gotten rid of the wetness. Last April I told you how we buried the palmetto and underbrush, even when it was over our heads, and how we threw our whole garden up into narrow beds with deep walks between the beds. As our ground has a gentle slope toward the canal it was an easy matter to have all the water get away speedily down to the canal. In our book on potato culture I said we wanted, even in Ohio, both *under* drains and *surface* drains; and down here it is most emphatically true. When three or four inches of rain comes down in one day or night, the tile drains are too slow. In regard to the width of these beds our finest potatoes are where a ten-foot bed takes just three rows of potatoes—one in the middle and one three feet away (or a little less) on each side. Now, we don't want deep furrows *between* the rows of potatoes. It will work like wagon tracks in the highway, and the surface of the bed needs to be crowning, exactly like a nice roadbed or more so. It wants to be so the water will go off into the paths as quickly as possible, instead of running down hill *between* the rows of potatoes. Terry says in the A B C of Potato Culture that at one stage of the growing potatoes he had often wished he had a balloon to pull the cultivator so as to avoid the tramping of the horses' feet in the mellow soil. In that same book, in describing potato-growing on Jersey Island, the author says these people have the rich ground worked up so mellow a man can push his hand straight down to the elbow.

Well, Wesley and I have our dark sandy loam worked up in just about that way;

and now comes my "discovery" of a way to grow potatoes, or to *cultivate* them at least, without setting a foot on the soft mellow soil, especially when it is pretty well soaked with water. With my light sharp hoe I can work up the ground beautifully without setting a foot on the soft mellow soil, and I can break the crust and let in the air and sunshine when it is so wet it would be very bad policy to tramp between the rows. "Lots of work," do you say? Well, it is; but it is work that I enjoy more than I can tell you, and it is work that a man 75 or over can do when he isn't "much good" for any thing else; and, besides, I grow nicer potatoes than any one else around here has ever seen, and they go off quickly at a bigger price when displayed in our Bradentown groceries. Fertilizers? These extra-fine potatoes grow where we had a poultry yard several years. It is a piece of ground that has always been "most *too* damp and springy" for a garden; but with the tile drains and deep paths it just *suits* Triumph potatoes. Strawberries, corn, beans, etc., grow nicely in the damp mucky part of our garden. Sweet potatoes grow too much to vines; but on a dry sandy spot of poorer ground they give not only many more tubers but of much better quality.

### UNRULY COWS, GARDENS, ETC.

Until recently cows have been permitted to "hold high carnival" on our streets nights; but since we have begun to call ourselves a "city," and have a daily paper, our marshal has begun putting the cows in the "pound," or at least some of them that had become "experts" in hooking gates open, etc., and it has made quite a little jangle. With this preface I submit a clipping from our Bradentown *Evening Journal*:

*Editor Journal*:—A good friend a few weeks ago told how hard it was to be fined and worried just because his cow happened to get through the fence, etc. Please let me "narrate" a little.

Last winter I was testing some choice sweet corn; and after a good deal of "nursing" and protecting,

the corn was almost ready to pick; but in the night a poor starved specimen of a horse was in our garden in the morning and had skillfully picked every ear (or bitten off a part), that was any good in the whole patch. Although he looked so helpless and inoffensive, he could use his heels with quite a little skill, as Mr. Rood can tell, for he called on pretty nearly all our neighbors.

Well, as you know, I am greatly given to hunting up "God's gifts," especially those adapted to Florida. I sent recently to California for seeds of the "winter muskmelon," a delicious melon that will stand as much cold as cabbages, at least the woman who advertises the seed says so; and if a woman said it, it must be true.

Well, we prepared the ground with great care, digging it up deep, and giving it plenty of manure

and fertilizer, and the melons were up and growing fine—at least they were yesterday. But this morning I found a cow had gotten in and waded the whole length of the bed, and then turned around and waded back again. We had fixed the soil so deep and mellow, she had a hard job of it.

Do you say we should have a good fence around our garden treasures (some of our trees cost several dollars)? But we can't well have a fence between us and our good neighbors. The women folks can't gossip real handy with any sort of fence in the way or a gate either. Bless you, no.

A. I. ROOT.

P. S.—Mrs. Root says I must explain that our neighbor has a good fence and gate also; but his next neighbor has a lot of boys; and, as you all know, boys will "sometimes" leave the bars down.

A. I. R.

## POULTRY DEPARTMENT

### POULTRY IN SOUTHERN FLORIDA.

Since early childhood there has always been a fascination to me about a hen and chickens, and also about a sitting hen. Who told her just how to go about hatching eggs? and how does it come that sitting hens for ages past have always followed the same program—a program that has puzzled and baffled incubator-makers, and is puzzling them still?

When we had been here about a week a hen wanted to sit; but as we had been getting only two or three eggs a day it took quite a spell to gather up 15 eggs. Down here I never use less than 15; and to our big Rhode Island Reds I give twenty or more. Just a word about the Rhode Island Reds.

I told you last winter we had two of these big hens to raise (or "mother") chickens. They are now over two years old; but when they are not wanting to sit they are always laying. When 70 hens gave only two or three eggs a day, these few eggs were quite sure to be yellow eggs, more or less. While the Leghorns and Buttercups were taking their long moult, these two were laying, say, about three eggs in four days, or an egg every day. Right here I am going to give you

#### A SUBSTITUTE FOR A TRAP NEST.

Trap nests are a bother, and take much time. Just pick out a hen you can tell by sight from the rest, and then see if you can not find some peculiarity about the eggs she lays. A hen of another breed from the rest, that lays a slightly different egg, can be easily "trap nested." Note down the day *she* lays, and you have it. Well, I reasoned if these yellow eggs bring 50 cts. a dozen, and the white ones, when the whole yard are laying (say in April) bring only twenty cents, why not keep more "reds" even if

they do eat more, especially as a large part of this "more" is green stuff that costs here little or nothing? Now let's get back to my sitting hen.

When she had twelve eggs I let her "start in," so as to have some new young chicks for my Christmas present—a present direct from the hands of a loving Father who taught the sitting hen her cute skill, and who moves *all* the machinery of this great universe. But I had only 12 eggs, and I wanted 15. I concluded just once more I would put in the other three next day, even if it is a bad plan.

#### HATCHING EGGS BY FLORIDA SUNSHINE.

I have long felt that we should, sooner or later, be enabled to do this, and now I will tell you how far I have succeeded in doing it.

The day before Christmas, every egg hatched (except the infertiles taken out the fifth day); and on Christmas, the chicks being lively, and wanting to get out in the warm sunshine, the hen came off, leaving two yellow eggs and one white one. I tried several times to push them under her when she brooded the chicks; but she seemed to choose a different place every time, and cared nothing for the three eggs. As I didn't want to fuss to keep a fire going for three eggs I let them go, placing them so the sun shone on them, until she settled down for the night. As none showed a pipped shell in the morning I again placed them on the bare ground in the sunshine. Well, in the afternoon I was delighted to see an egg pipped, and toward night the chick inside had got clear around so the shell came off in halves just as she settled down again for night. In the morning a great downy Rhode Island Red chick was running about, almost as lively as the rest. The next day the second yellow egg went

through the same program, and in the night the white egg hatched; but the chick was lost by my carelessness. Any way, I have two as fine chicks as any in the brood that came out of the shell by sun heat,\* and right in bright sunshine. Now, how does this tally with the directions for all incubators, to avoid opening the incubator door when chicks are hatching?

Just one word more: The father of these red chicks is a full-blood Buttercup, or very nearly so; and already, at a week old, their wing feathers are out, embellished with the *beautiful* Buttercup spots and lacings. No gaudily painted Christmas cards can equal mine, for it was the finger of the loving Father who painted them *expressly* for my poor self.

I pretty nearly know by experience that some of my good friends will take me to task for "jumbling up Leghorns, Buttercups, and Rhode Island Reds;" but, my dear sirs, if I get eggs, and you don't, between Thanksgiving and Christmas, am I not ahead? The 303 eggs in one year came from a crossbred hen; and you *know* "handsome is as handsome does."

#### SITTING HENS—MORE ABOUT THEM.

In our issue for April 15, 1913, I described friend Stoddard's arrangement permitting the hen to stay right where she commenced to sit, and yet be free from annoyance from other fowls. As the arrangement necessitates expensive yards and nests, I have devised a plan that seems to answer about as well, and perhaps quite so. First, have all your nests in movable boxes, and boxes not all just alike. When a hen is found on the nest at night, go after dark and very quietly lift and carry box and all to some secluded place. A room or building for all your sitting hens is a very good thing. This room should have feed, water, etc., convenient for the hens; and my experience has been they will go back to their own box and eggs, after going off for feed and water. If they seem wild, be careful about scaring them off the nest until they get used to their new surroundings. Stoddard puts strong emphasis on the importance of letting the sitting hen run outdoors, fly and scratch, etc., and I think he is right. After a day or two I open the door of the sitting-room, and they always come back. During very warm days some hens will go off twice or more times in a day; and I have known some to stay from the eggs, when the day was very hot, for a couple of hours, and yet they made excellent hatches. One hen, in fact, was off when the eggs were hatch-

ing; but the hatch came off all right. When you carry the nest, hen and all, away, of course you fix a similar nest in its place for the other hens to occupy next day. No matter how many nests I provide, our hens seem to prefer particular nests, and one hen will stand and wait "her turn." The matter of a preference for the nest they were accustomed to was suggested when I tried to give a sitting hen a better box than her old rickety one. Although I fixed up the new box nicely, and put in all the eggs, she would get off and go back to the old familiar box, and I had to carry it clear off where she could not find it.

Hens usually prefer a nest up off the ground or floor. A couple of staples, such as are used for barbed-wire fence, driven in the edge of the box and hooked on two nails in the wall, will hold the nest secure, and yet it is easily lifted off the nails. To give the nest seclusion, and also to prevent fowls roosting on the edge of the nest, a thin wide board is fastened to the box for a roof, with so sharp a slant no chicken can stand on it. Now close *one* of the gable ends and it will please the "biddies" to a dot. A sitting hen, when safe from intrusion and prying eyes, often pulls the straw out of the corners so as to leave a place into which the eggs sometimes fall. To fix these corners so the newly hatched chicks cannot tumble down into them and get chilled, I fill them up with sandy loam. This the hen cannot well work out, and the damp earth is a good thing for the eggs, especially during a dry time. To put this in, without disturbing the hen, I use a big tinned tablespoon fastened on the end of a lath. This same tool I use to get the eggshells out of the way and to put a young chick back in the nest when it tumbles out. If you use your naked hand you may get thrusts of her bill that will bring the blood. This spoon is also handy in putting eggs under a hen when she is "fierce." I also use it in gathering ducks' eggs every morning when they lay in a concealed nest in the weeds and bushes. This same stick and spoon is also used as a "token of authority" when the flock of ducks seem inclined to disobey "marching orders."

#### DOSING SICK CHICKENS, ETC.

I clip the following sensible advice from a writer in the *Ohio Farmer*:

There are so many persons who are set on drugging fowls that a bit of general advice seems to the point. The best possible way to doctor sick hens with drugs is to make a hole in the ground at some convenient place and pour your drugs in the hole, meanwhile giving the hens sunlight, air, and good food.

What vexes me particularly is the adver-

\* Sun heat is ample if we had some way of storing it up to carry the eggs through the night.

tisements in so many poultry journals of a long list of medicines at "50 cts. a box," when our different experiment stations have told us repeatedly that only two or three cents' worth of real medicine is contained in these little boxes. I hope the time is close at hand when the business of "robbing sick folks" by humbug testimonials (as well as sick chickens) is near an end. Precautions to keep out vermin are, of course, all right; but see you don't pay a great price for "insect powder."

When we arrived here Wesley assured me there was no vermin of any kind on the chickens or in the houses; but to be on the safe side I ordered a gallon can of zeno-

leum. Along with it I sent for a 25-cent box of insect powder, supposing I would get perhaps half a teacupful. I was pleasantly surprised to get a can with a pepper-box top, holding over a quart, and the directions on the can tell us to sift it freely where they wallow, and dust themselves under shelter. I did this, and the whole tribe, roosters and all, did the business of getting it most effectually all through their feathers. I didn't notice any "sneezing" among the chickens; in fact, it seemed just to suit them; but I did quite a little sneezing myself by the time I had sifted it into all their nests and around the roosts.

## TEMPERANCE

### PROHIBITION IN THE UNITED STATES, AND THE WAY IN WHICH IT IS PROGRESSING.

When you feel like saying, or hear some one else say, prohibition isn't making progress, just submit the following, which we copy from the *San Francisco Daily News*:

FOUR-FIFTHS OF U. S. IS "DRY," NOT A SINGLE STATE ALL "WET."

ATLANTA, GA., Dec. 10.—Four out of every five square feet of the United States is "dry" territory! More than half of the people of the nation live under prohibition!

Such were the astounding facts submitted in reports to the Woman's Christian Temperance Union in convention here. To the layman who has viewed the white-ribboners' fight without interest the statistics are astonishing, and sufficient to convince the impassive voter that nation-wide prohibition is far more imminent than imagined.

Eighty per cent of the territory of the United States is "dry." Of the 2,973,890 square miles that go to make up continental United States only 737,828 miles are "wet." The remaining 2,236,062 are without saloons.

The last census gives the population of the United States as 91,972,266 persons. Of these, 54 per cent, or 48,118,394 reside in territory in which the sale of liquor is prohibited.

The winning of five States in recent elections gives the anti-saloon forces the majority. In September, Virginia adopted prohibition, and on Nov. 3 Arizona, Colorado, Oregon, and Washington were added to the list.

Now 14 States are totally "dry," and no States are totally "wet."

Pennsylvania, Minnesota, Montana, and Nevada, all mining and lumber sections, are the only States which have only minor prohibition areas.

In every other State the "drys" hold a territorial advantage.

In 1868 there were 3,500,000 persons residing in territory in which the sale of liquor was prohibited. In 1900 the number had increased to 18,000,000. In 1908 the number had doubled, reaching 36,000,000, and to-day it is more than 48,000,000.

The South has for many years been in the lead in the fight for prohibition. In 1907 Georgia passed a prohibition law, though not statewide. Within a year Oklahoma was admitted to the Union with a

constitutional prohibition against liquor. Alabama and Mississippi soon followed.

In 1908 prohibition was voted into the constitution of North Carolina. Tennessee followed in 1909. Alabama is the only Southern State which has dropped out of the prohibition column, doing so in 1911, by repealing the prohibition law and adopting a local-option measure. In 1913 West Virginia voted out saloons.

The prohibitory law had a close call in 1911 in Maine, where it had been in effect for 55 years. It was resubmitted, and was carried by a bare majority of 758.

The prohibition forces have met with reverses. They failed to win in Florida, Texas, Arkansas, Missouri, Colorado, and Oregon within the last four years, though two of these States accepted prohibition this year.

In two States which voted on the question this year, the proposition failed to carry. They were Ohio and California. The Ohio election was close, but prohibition was overwhelmingly defeated in California, probably due to the extensive wine industry in the State.

The following are the States in which the sale of liquor is prohibited: Maine, Kansas, North Dakota, North Carolina, Georgia, Oklahoma, Mississippi, Tennessee, West Virginia, Virginia, Arizona, Washington, Oregon, Colorado.

In the following States from 50 to 85 per cent of the population live in no-license territory: Alabama, Arkansas, Florida, Indiana, Idaho, Iowa, Kentucky, Louisiana, Minnesota, Nebraska, New Hampshire, South Carolina, South Dakota, Texas, Vermont.

### WHY ARIZONA WENT DRY.

Among the manifold reasons which led the citizens of Arizona to cast their ballots for a dry State were the following which appeared in a column display advertisement published in the *Southwestern Stockman Farmer*, contrasting conditions in wet Arizona and dry Kansas:

"Last year," says this advertisement, "Arizona sent to the penitentiary at Florence 140 prisoners to each 100,000 population. Kansas sent but 16. Arizona's tax levy was \$4.95; Kansas' but \$1.20. Arizona had 1000 government tax receipts, while Kansas had but 104. If these represented saloons, Arizona had one for every 231 people, while Kansas had one for every 9050 people."—*Union Signal*.